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THE
ELEMENTARY PRINCIPLES
OF
TACTICS;
WITH
NEW OBSERVATIONS
ON
THE MILITARY ART.

Written originally in FRENCH, by Sieur B———,
Knight of the Military Order of St. LEWIS.

AND TRANSLATED
BY AN OFFICER OF THE BRITISH ARMY.

WITH TWELVE COPPER-PLATE PLANS,
TO ILLUSTRATE THE DIFFERENT MANOEUVRES.



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M.DCC.LXXI.

TO
HIS ROYAL HIGHNESS
WILLIAM
DUKE OF GLOUCESTER
LIEUTENANT GENERAL OF HIS
MAJESTY'S FORCES
AND
COLONEL OF THE FIRST REGIMENT
OF FOOT-GUARDS



that it pleases Your Royal Highness

As a testimony of profound respect
accompanied with the sincerest wish
that your royal highness may as far
surpass the brave commanders in merit
and capacity as you are above them in
birth

THIS TREATISE
IS MOST HUMBLY DEDICATED

BY

YOUR ROYAL HIGHNESS

MOST OBEDIENT AND

MOST HUMBLE SERVANT

THE EDITOR

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BIRTH,

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MOST OBEDIENT, AND

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THE EDITOR.

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THE general approbation which the following remarks have met with both in France and Germany, from men distinguished abilities in the military profession is more than a presumptive argument of the merits and utility of the performance. The favourable character it had on the continent encouraged me to introduce it here from an opinion that some hints might be thence borrowed that would not be useless to our British troops. Without attempting to give private sentiments on the judgement and capacity of the writer, I shall only say before the reader some few particulars relative to his plan.

The author, who is an officer of rank and reputation, begins with explaining the use and importance of manual exercise, and the great advantage of skill and expertise in this particular, as they are

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THE author, who is an officer of rank and reputation, begins with explaining the use and importance of manual exercise, and the great advantage of skill and expertness in this particular, as they not

only enable the soldier to employ the full power of his strength most effectually, but likewise contribute greatly to confirm his courage and confidence. He then (after shewing the effects and ill consequences of various positions now in use) offers others less liable to objection or inconvenience, and which, he presumes, are better adapted to increase the degree of action and accelerate its effects; this being, as he justly remarks, the end and design of such positions.

WITH respect to the different manœuvres and evolutions of an army, either in attack or defence, in advancing to or retreating from an enemy, he pursues the same method, taking notice, as he proceeds, of what appears to him injudicious or erroneous in the present system of Tactics in Europe; and tracing the origin and source of those errors, he furnishes the means of rectifying or avoiding them. From thence he passes to the military discipline and arrangements of the Greeks

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and Romans, on which he makes several reflections.

From a perusal of the book, gentlemen of experience in the army will easily discover how far the author's system is practicable and worthy of imitation. To those in particular the translation is addressed.

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T H E
C O N T E N T S.

	Page
<i>OF Manual Exercise, or the Use of Arms,</i>	1
<i>Of Degrees of Action,</i>	2
<i>Of Positions in general,</i>	4
<i>Of various Positions,</i>	7
<i>Of the Method of carrying the Firelock,</i>	8
<i>Of the Position of Poize your Firelock.</i>	11
<i>The Effects of this Aiteration,</i>	13
<i>Of the Manner of charging the Bayonet,</i>	14
<i>Origin of the Defects of this Position,</i>	16
<i>New Method of charging the Bayonet,</i>	18
<i>Consequences of this new Position,</i>	19
<i>Of Presenting,</i>	20
<i>New Method of Presenting,</i>	ibid.
<i>General Idea of Exercise in Battle,</i>	21
<i>Of the Time required in Exercising,</i>	23
<i>Of the Density, or Closeness of a Body of Troops,</i>	24
<i>Of different Manœuvres,</i>	25

THE CONTENTS.

<i>Of forming Companies,</i>	27
<i>Of forming Detachments,</i>	29
<i>Of forming Batallions,</i>	32
<i>Manner of forming two Lines with the same Corps,</i>	33
<i>Of doubling of Files,</i>	35
<i>Of opening or dividing the Files,</i>	37
<i>Of the Passage of full Lines,</i>	38
<i>Passage of full Lines in a Retreat,</i>	40
<i>Of different Firing,</i>	43
<i>Platoon Firing,</i>	<i>ibid.</i>
<i>Street, or Hedge Firing,</i>	46
<i>Fire of a Parapet,</i>	49
<i>Fire of Six Ranks,</i>	50
<i>Observations on the Column,</i>	51
<i>Definition of the Column,</i>	53
<i>Advantages of the Column,</i>	55
<i>Defects of the Column,</i>	57
<i>Of the Methods used, or proposed, for forming Columns,</i>	58
<i>Ideas which those Reflections offer for discovering a better Method of forming the Column,</i>	61
<i>Of different Sorts of Columns,</i>	64
<i>Order of the Companies for Forming the Columns,</i>	66

THE CONTENTS.

<i>Columns of single Files,</i>	67
<i>Manner of Forming,</i>	69
<i>Analysis of the foregoing Column,</i>	70
<i>First Object,</i>	71
<i>Second Object,</i>	ibid.
<i>Third Object,</i>	ibid.
<i>Fourth Object,</i>	72
<i>This Method applied to a Battallion,</i>	ibid.
<i>Of Escorts,</i>	80
<i>Of mixing Cavalry and Infantry,</i>	81
<i>Observations,</i>	84
<i>Columns of double Files,</i>	87
<i>A Column of two Battallions,</i>	91
<i>Of the Passage of full Lines, the First being thrown into Disorder,</i>	94
<i>New Method for the Retreat of the First Line,</i>	97
<i>Passage of two Lines, one of Cavalry and the other of Infantry, One of the Two being in Disorder,</i>	101
<i>Whether either of those two Species of Troops is preferable to the other,</i>	104
<i>Method of giving the Superiority to the In- fantry,</i>	107
<i>Observations on the Greeks and Romans,</i>	114

THE CONTENTS.

<i>Conjectures on the Origin of those two Military Regulations,</i>	115
<i>Observations on the Tactics of Europe,</i>	137
<i>Observations on the Character of the Nation,</i>	142
<i>Observations on the System proposed in this Work,</i>	145
<i>Observations on the Changes of the Fronts,</i>	148
<i>General Rules for the Execution of this Manœuvre,</i>	151
<i>Of the different Changes of Front, which a Battallion may have Occasion for,</i>	152
<i>On the two first Positions, A and B,</i>	153
<i>Manner of providing against Accidents which may happen in this Arrangement,</i>	154
<i>Arrangement for attacking in B,</i>	157
<i>Change of Front for receiving the Enemy in C,</i>	158
<i>Change of Front for receiving the Enemy in D,</i>	159
<i>Change of Front for receiving the Enemy in E,</i>	161
<i>Change of Front for receiving the Enemy in F,</i>	163
<i>Change of Front for receiving the Enemy in G,</i>	165

THE CONTENTS.

<i>Observations on Certain Evolutions of the</i>	
<i>Ancients,</i>	170
<i>Of the Lozenge,</i>	171
<i>Of the Lozenge that has neither Ranks or</i>	
<i>Files,</i>	179
<i>Of the Wedge of Cavalry,</i>	181
<i>Of the Triangular Wedge of Infantry,</i>	182
<i>Of the Triangular Wedge, with a full</i>	
<i>Center,</i>	ibid.
<i>Remarks on this Arrangement,</i>	183
<i>Of the open Wedge,</i>	188
<i>Of the Tête de Parc,</i>	204
<i>Of the Tenaille,</i>	206
<i>Of the Round, or Circle,</i>	209

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OBSERVATIONS
ON THE ELEMENTS OF
THE MILITARY ART.

OF MANUAL EXERCISE, OR, THE USE OF ARMS.

BY manual exercise is meant the most advantageous method of employing the bayonet and musket, which the foldier makes use of either in close engagement or at a distance. Manual exercise then, or the right use of arms, is the first and most important lesson to be learned by a foldier ; and it is on the greater or less degree of perfection to which this art is carried that the fate of a battle frequently depends, as it is by this the designs of the general are well or ill executed.

THE means of acquiring perfection in this matter deserve the most serious attention; and the source from whence all precepts on the subject are to be deduced must necessarily spring from a knowledge of the natural and moral powers which make men act, and from the art of exerting those powers.

THOSE powers are strength of body and skill or dexterity, courage and confidence; the two latter are, however, but secondary and flow from the former, for their influence on man never makes him act but in proportion to the opinion he entertains of his strength and skill; that is to say, of the degree of action of which he is capable.

OF DEGREES OF ACTION.

IT is beyond dispute that the greatest degree of action, of which a man is capable, consists in the whole of his strength multiplied by skill and dexterity. Bodily

strength, therefore, being permanent in a healthy state, the degree of the man's action cannot vary but according to the different degrees of skill or dexterity that he may acquire. Whence it follows, *first*, that if a man's skill or dexterity, and consequently his action can be doubled or trebled, the action of a company or a whole army may be augmented in a similar progression; because this action consists in combining different actions, which then only form one general action: *secondly*, that every position which exhausts the strength of the soldier, or obstructs its exertion, divides his action, and weakens its effects in the same proportion that his skill encreases them. Courage, therefore, which arises from a confidence in strength, must naturally augment from an encrease of the degree of action, and like it depend on the degree of skill and dexterity which the soldier has acquired; 'tis therefore of the last importance, not only to instruct him

how to employ his arms with advantage, but likewise to place him in such an attitude as is most proper to facilitate the full exertion of his strength and skill, which, by augmenting his degree of action, will, moreover, accelerate its effects.

OF POSITIONS IN GENERAL.

POSITIONS are to be conformable to the strength of the body and the weapons used: they should likewise be so far in harmony with the natural motion and play of the muscles, that the soldier may not be induced, by any instinct whatever, to deviate in the least from them, either in an attack or defence. If the soldier, when exercising, finds his attitude uneasy, he will preserve it no longer than while he sees no danger in preserving it, and he can see none at a review or muster. But if this attitude forces the mechanism of his body, and if, notwithstanding the habit he has been

made to contract, and which necessity obliged him to; if, I say, notwithstanding this habit, he finds himself uneasy on a day of battle, he will^a be sensible of its insufficiency, and endeavour to find out a posture of defence more natural than that which had been prescribed him; he will quit the position determined by discipline, and as chance alone shall direct him in the choice of another, he cannot rely on it; his confidence, at least, will thereby lessen, especially too when he sees his comrades, each according to his particular fancy, attempting positions they may think more secure. From whence it evidently follows, that, though the position dictated to the soldier by instant necessity, must be preferable to that which he had been taught, the order and harmony of a company (a thing absolutely necessary) would not be less destroyed, as every soldier would place himself as he thought proper, and

that it is impossible all should have the same idea.

IN all fencing schools in every country where swords are worn, the postures are the same. Why this general uniformity? because they are founded on rules drawn from our frame and texture; rules that have not only demonstrated the excellency of those attitudes, but also that they alone could be opposed to the like positions. It is not possible to settle the exercise of the musket with the bayonet fixed on the same sure principles? It seems so to me, and that those principles may be discovered by consulting nature alone. I may be mistaken, but I imagine that this object, about which we have been so long at a loss, may be attained. I dare not affirm that I have attained it, but no one will, I hope, object to demonstration.

OF VARIOUS POSITIONS.

THE positions required in battle are those expressed by the words, *Poize your firelock, Charge your bayonets, Load, Present, and Fire.* Almost every nation is defective in the manner of executing the different motions which these positions require and suppose; but we shall endeavour to demonstrate the defects of the established method, before we pretend to offer one more certain and useful. An enquiry of this nature, with regard to such an object, should the less depend on hypothesis or speculation, as nothing is more susceptible of geometrical demonstration than the principles from whence we shall draw the new rules we mean to propose.

OF THE METHOD OF CARRYING THE
FIRELOCK.

THE method of carrying the firelock on the shoulder deserves examination. In time of war the soldier is sufficiently encumbered with things absolutely necessary, without the addition of any superfluous weight. The method settled by military discipline is the best that could be devised; we shall explain its advantages, that no person may be induced to attempt any innovation,

THE firelock should be carried so as never to become a lever, otherwise, according to the point of rest it should have, it would more or less exhaust the strength of him that carried it.

THERE are two ways of carrying the firelock without its becoming a lever, and consequently without encreasing in weight.

THE first is by laying it horizontally on the shoulder, in due equilibrium, so that it may rest there as a balance, without the support of the hand.

THE second is by placing it perpendicularly against the shoulder, the but-end in the hollow of the hand.

IN the first position the center of gravity is directly on the shoulder ; in the second it is in the hollow of the hand ; in both the man only carries the specific weight of the musket. This, however, does not hinder the first position from being faulty, as the least motion may, by disturbing the equilibrium, entirely alter the center of gravity. If the musket, for example, should slip back, so that of 20lb. which it specifically weighs, there should be 12lb. behind and 8lb. before, the hand that secures the piece from falling will add 4lb. to the but-end, and the musket on the shoulder will then be 24lb. the effort of the hand to produce

those 4lb. in order to recover the equilibrium, fatigues still more than the burthen, which is by this means augmented at least one half; it is the same with respect to all similar methods: the musket on the side of the hip is in a position uneasy, unsteady, and by no means natural; the but-end between the hip and the buckle of the belt is still worse, as the broad part of the thumb forms the pivot, the tops of the fingers the resistance, and the end of the barrel the power. The disproportion between the two parts of the musket shews, at first glance, the effects its inclination must produce, and makes it unnecessary for us to enter into a more minute disquisition. From all those circumstances it follows that the method settled by discipline is the best, as the musket by this means weighs no more than its specific weight, and can never become a lever, the soldier makes a graceful appearance under arms, his body and limbs are easy and natural.

OF THE POSITION OF POIZE YOUR FIRELOCK.

THE musket in itself is but a missive weapon ; with the bayonet fixed, it is a missive weapon, partaking in some measure of the nature of a half-pike. The manner of using it as a missive weapon should be different from that where it is employed as a half-pike. It is therefore necessary to give the soldier a mixed position, so that he may, at a single motion, shift to either, as circumstances shall require. The present method of *Poizing the Firelock* cannot answer this double purpose, because the position in use is proper only in close engagement, and for a short time, and becomes faulty and hurtful when the soldier is obliged to march, and for the following reason.

THE soldier, in his rank, occupies a space equal to the distance that is between the extremities of his elbows, which is his greatest diameter ; all the

soldiers of the same rank touch each other with the elbows, and this point of contact is the point of direction in marching: when the soldier *poizes his firelock*, he carries it perpendicularly before him, the fore-part of the left arm quite close to the piece, right before his body, and the right elbow raised to the height of the wrist. It is then evident that this position, by changing the first attitude of the soldier, contracts his diameter, and that, by occupying in this new position less ground than he did before, if the company marches, the files are contracted. The soldiers whose arms are so placed before, having lost part of their ground, find themselves, after a few paces, incapable of action, they are no longer in a condition to shoulder their muskets, but with the utmost confusion: if they fire, they cannot load again without opening; if they face the enemy, their hands are tied up in such a manner, that they can neither attack them or defend themselves. This position, which

is almost general through Europe, is therefore of pernicious consequence, as it is an evident obstacle to the action of a soldier.

THE origin of these defects shall be explained when we come to speak of the method of charging the bayonets; in the mean time, to obviate every inconveniency, we propose only to change the position of the left hand; and to place it on the little hook at the but-end of the musket, the two elbows remaining in their natural situation beside the body, the rest as in the old position.

THE EFFECTS OF THIS ALTERATION.

THE consequence is, that the soldier is not more incommoded by this method than by carrying his musket on the shoulder, that he can advance, fall back, or march on the flank, without losing ground; that, by a single motion, he can present or charge his bayonet, and

preserve his position in presence of the enemy.

THE advantages of this position will appear still stronger when it shall be seen in the manœuvres that the march of a company, for each discharge it shall make, shall not be retarded above the time required for two motions.

OF THE MANNER OF CHARGING THE
BAYONET.

THE present method of charging the bayonet is by turning to the right, the musket laid horizontally on the left arm, with the lock opposite the pit of the stomach.

It must be observed, that in this position the soldier has the but-end behind him, and the left elbow advanced towards the middle of the barrel, consequently that the barrel projects too little to be of use, or awe the enemy; the

space between the bayonets is too considerable, as it is equal to the ground which the soldiers occupy; and that, in fine, if the enemy should come to attack them sword in hand, they must necessarily fight with the left-hand, or change their position; this necessity clearly evinces the insufficiency of the established method.

THE peasant, when he makes use of his pitchfork, has the right hand before, and the left on the end of the handle. Were he to fight, he certainly would take the same position, without considering that established for the musket and bayonet, the origin of which shall be given, and likewise that of the position of *Poize your Firelock*, in order to shew the necessity of an alteration.

ORIGIN OF THE DEFECTS OF THIS POSITION.

THE musket when first introduced, was, as I have already mentioned, nothing more than a missive weapon, which was used with the but-end against the right shoulder, the right hand behind the touch-hole to apply the match, and the left before to support it. As often therefore as there was occasion for using it, it was natural to fix the hands on the parts described, in order to rest the but-end afterwards against the shoulder, and fire. Such was the origin of the method of *Poizing the Firelock*, which was rational enough as long as the musket remained only a missive weapon; but from the time it partook of the qualities of a half-pike, by the addition of the bayonet, the ancient position became faulty, and should have been altered; but from the influence of custom and prejudice, no

alteration has taken place, and every nation in Europe has been a sufferer.

THE inventors of the bayonet, accustomed to make use of their fire, continued to look upon it as the principal, and almost the only object, and never once thought of employing this new weapon but in the most favourable position for presenting. They concluded the effect of the fire would sufficiently atone for the difference of dexterity between the right hand and left. Their error has been faithfully transmitted, and as faithfully followed by all their successors to the present generation.

IF the origin just now given of those two positions be as accurate as it appears, and if the errors of both have been laid open in such a manner as to convince, the little inclination troops have to come to a close attack no longer remains a mystery. Would so many men, who

are ready enough to draw their swords; shudder at the sight of a bayonet, if they were equally acquainted with its use? Indeed a weapon whose use is not properly known, is not apt to inspire much confidence. The knowledge of his arms, and their use, should therefore be the first lessons given to a soldier.

NEW METHOD OF CHARGING THE BAYONET.

THE soldier of the first rank being in the position of *Poize your Firelock* (as it is proposed) must move his right foot two paces forwards, the left hand lowering the firelock gently by the little hook at the but-end, until the latter rests against the left thigh, under the watch pocket, the right hand to be shifted immediately, in order to lay hold on it above the spring, and the bayonet to be raised to a level with the right eye.

THE soldier of the second rank must advance his left foot before the point of

the right, and half level the piece, the but-end only resting between the nipple of the right breast and his arm, and the bayonet on a level with the eye.

THE soldier of the third rank is likewise to advance the left foot before the other, which he is to move at same time to the right, in order to half level his piece as the second rank.

CONSEQUENCES OF THIS NEW POSITION.

THIS position is gained by a single motion, and exhibits the soldier of the first rank sheltered from the enemy's sword by the position of his firelock and those of the soldiers of the second rank, the whole length of which is before him. He is full master of his piece, as it is managed by his right hand, and as he can by that means exert all his strength against the weapon of his adversary. He can advance or retreat as circumstances

require. The front of the line is in a manner bristled with bayonets, as three are seen for one, and the bayonets of the second rank project farther beyond the first rank, than the bayonets even of the first rank in the present position.

OF PRESENTING.

THE position of kneeling is by no means necessary for troops that are only three deep; it is needless to prove that the fire is thereby slackened, and the arms and spatterdashes injured. It is sufficient to point out a better method.

NEW METHOD OF PRESENTING.

LET the first rank incline to the right, by carrying the right foot square behind the left heel and presenting. The second rank make a half turn to the right at the same time that it presents.

THE third rank is to move the left heel before the point of the right foot, shifting this foot at same time to the right, in order to present between the two files, the body leaning forward. This alteration is liable to no inconvenience, the musket being long enough to pass the first rank, and its direction determined by the foldiers of the second rank.

GENERAL IDEA OF EXERCISE IN BATTLE *.

THIS exercise should consist only of such positions as the foldier may have occasion for on the day of action. The execution thereof should be as simple and concise as possible. As we have demonstrated the new method of *Poizing*.

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* The exercise in a day of action here proposed, is not designed to exclude the school exercise, which should be long, complicated, and laborious, such as is proper for forming young foldiers.

the Firelock to be so natural, that it may be preserved even in presence of an enemy, it is the first that should be taken in this exercise; and as the soldiers can shift from this position to any other that may be necessary, at a single motion, they should be accustomed in the manœuvres to execute them according as circumstances may require. The soldier should be trained in such a manner that, in this position, whether he is advancing, falling back, retreating, or marching on the flank, he may readily face about, charge his bayonet, or present, at a single motion, or at most two, performed in the time of one. It is easy to determine all the variations of which these positions and motions are susceptible, so as to make them familiar to the troops. The motions for loading should constitute part of the exercise, and the positions of the soldier's body, and those of his musket, should be such, that he may be able to march and load, without quitting his rank.

OF THE TIME REQUIRED IN EXERCISING.

WHEN soldiers pass from one position to another, it is either by simple or complex movements. By a simple movement is meant what is performed, as we say, at one motion; and by a complex movement, what requires more than one. A single movement is that where the musket describes only a single line, and where the hands do not shift their situation. Every change of this kind must be reckoned a motion. This is necessary in order to accustom the soldier to execute those motions with regularity, and he should be so well trained as to run quickly through all the movements without interruption.

OF THE DENSITY, OR CLOSENESS OF A BODY
OF TROOPS.

THE more closely united and compact the constituent parts of a physical body are, the more solid and dense that body is said to be. This term has been applied to troops, and many persons take it to be literally true. From hence it has been imagined the closeness or density of a body of troops cannot be too great, and that its strength encreases in proportion to its density.

THIS mistake arises from an expression foreign to the object, and which implies more than was first intended; for were soldiers so closely united in ranks and files as to form but one lump or mass, the troops would become a mere lifeless passive body, incapable of performing any one action. A body of forces should be then more or less closely united, according to the weapons they are to use;

but whatever the nature of their weapons may be, they should have their body and hands free, that nothing may lessen their quantity of action.

OF DIFFERENT MANŒUVRES.

INTRODUCTION.

IN the foregoing observations, with respect to the manual exercise, and the various positions it requires, we have endeavoured to shew how far those that have been transmitted down to us are contrary to the true principles of attack and defence, which should be the basis of all instruction to the soldier. The same defects are apparent in the manœuvres or evolutions; many complex motions and turnings, much time lost by superfluous directions, and unnecessary words of command, &c. It was useless, for example, to teach the soldier different

methods of performing the same thing : this requires explanations to distinguish them from each other, when an enemy appears there is no time for such discussion. A manœuvre or movement should be plain, simple and natural, and executed the shortest way possible ; by this means troops may be made to perform it at a single word or sign.

To render a manœuvre serviceable, besides celerity there should be a connection between the divisions, so as that they may be able mutually to support each other in case of accident, and that the strength of the troops may encrease each moment, or that they may be in a condition to receive the enemy at the critical moments where they may stop to come to an attack.

WE shall not lose time in discussing the methods of performing the following manœuvres ; we shall only give them agreeable to the principles already laid

down. Such as are curious to see in what the established methods differ from those we are about to propose, may make a comparison, and they will find that the manœuvres may be executed by the methods we shall point out, in half, quarter, and some even in thrice less time than is now bestowed on them, and yet with every precaution necessary for the security of the troops.

OF FORMING COMPANIES.

THE manner of ranging soldiers in forming a company (*Pl. I. Fig. 1.*) has great influence on the firmness of a body of troops before the enemy, and secures the execution of the manœuvres, particularly the doubling of the files, and the passage of full lines, agreeable to the method we are going to lay down.

THE ranging serjeants, corporals, soldiers who have extra pay, and veterans in the first and second rank alternately,

would be an essential matter; but as troops make a better appearance when ranked according to size, both objects may be united in the following manner.

LET the corporals, and some serjeants, mixed alternately with fusileers, form the first rank.

THE soldiers who have extra pay, and veterans alternately mixed, likewise with fusileers compose the rear rank.

THE rest of the company to form the second rank.

THE files to be called first and second file, from the right to the left.

THE subalterns in the first rank to be chiefs or heads of the first files, and fusileers to be heads of the second files.

IN the rear ranks the subalterns will be the last of the second files, and fusileers be the same in the first.

THE subalterns, who happen not to be of a proper size for their order, may be placed in the second rank of their file, where they will be of equal service, and their places supplied by chosen soldiers.

THE companies may double their files and divide them, before the batallion is formed, that each man may know what he has to do, as often as this manœuvre is to be performed.

OF FORMING DETACHMENTS.

THE method practised in forming detachments is defective, and offers nothing rational and determinate with respect to the general order. A detachment should consist of a number of men, who form a small corps complete and distinct in themselves. The number twelve is that which is best adapted to our system; because of this number either four or two files may be formed, three or

fix deep. A serjeant and three corporals, or soldiers who have extra pay, making part of this number, may at all times be charged with the care of eight fusileers, and each of them, in particular, might have an immediate eye on the behaviour of two; they might be obliged to give the superior officer an account of the disposition and character of each of the two men under their inspection.

EACH soldier thus finding himself constantly under the eye of a vigilant inspector, would necessarily be more attentive and exact in executing the manœuvres.

THE detachments, as often as called to arms, may be completed by breaking the last, in order to replace those that should be absent in the others; and as this will happen almost perpetually, there will be no want of subalterns for bringing up the files, and being placed behind the officers in the rear ranks.

Not only a company would be more easily managed by sub-dividing it thus into a number suitable to the general order, but likewise great advantages would thence accrue to the service. The custom of making soldiers mount guard in turn, by obliging each company to furnish three or four, gives room to many irregularities, and is a great encouragement to desertion, because by this means the soldiers are very seldom on guard with the subalterns of their own companies, or with persons who are acquainted with them, and know where to post them. This would not be the case if one or more companies were obliged to furnish, in their turn, for the whole batallion; and if entire detachments were sent to all the posts where such numbers were requisite, and according as more or less than such numbers would be wanting, the half or quarter of a detachment might be sent out.

OF FORMING BATALLIONS.

THE practice is to form the two lines of different corps, that is to say, one regiment, one brigade, &c. is placed behind another regiment or brigade, &c. It is true these corps often act in concert; but it also happens sometimes that they do not, for want of knowing each other, and there are but too many examples of the terrible consequences that it may occasion. The only means of securing the harmony and good behaviour of troops is by placing one half of each batallion behind the other. Friends and comrades always interest more sensibly than those with whom we do not usually associate. Honour and glory being equally common to members of the same corps, the second line will be attentive to the fate of the first, will be eager and zealous to succour it, use every means to cover its retreat, and these different sentiments likewise are apt to divert the mind from

present danger. The courage of the soldiers of the first line is continually animated by the presence of their comrades in the second line, who are attentive to their behaviour. The praises and reproaches which each man has to expect from witnesses with whom he is to pass his life, are powerful inducements to behave well. He dreads having reason to blush at his behaviour before a comrade, and it is this salutary dread that constitutes what we call the spirit of a corps, which preserves and cherishes the bravery and courage of a soldier.

MANNER OF FORMING TWO LINES WITH
THE SAME CORPS.

THE companies of grenadiers being unequal in all the battalions, their post should be regulated by the commanding officer.

THE batallions are composed of four divisions, and each division forms two platoons.

To form two lines I would make the first platoon of each division advance a few paces beyond the line, or the second might fall back.

I would afterwards make the platoons close on the right, left, or center, as the general order required, and then the batallions would form two lines.

BEING thus formed, as they arrive there will be no space between the corps; if the line should be formed immediately in the same manner that it is disposed in two lines, there would be vacant spaces; but if the two lines were formed (the troops being complete and undivided) they might be ranged in four lines, and the soldiers of the third and fourth line made to advance opposite the intervals of the first and second, which they might

fill up, and then form only two full lines, the half of each corps supporting the other.

OF DOUBLING OF FILES.

THE principal object of this manœuvre is to give the troops more depth, that they may have greater resistance or weight in a conflict; but it is not less essential in other important cases, as shall be seen hereafter; but it is not to be employed on any occasion but when very near the enemy, to avoid the destructive fire of their artillery, and the manner of executing it should be as simple and expeditious as possible.

THIS manœuvre may be performed by three redoubled paces; (*Pl. 1. Fig. 2.*) at the two first the ranks open at the distance of one pace, after which the second files halt; the first files continue to march a third pace obliquely forward on

their left, and place themselves, viz. The first or leaders before the first of the second files, the second before the second, and the third before the third; so that each file thus doubled has two choice men, the one at the head, the other at the end.

ALL that is then to be done is to close the files on the center, which is the shortest method; but if the enemy will not give time for it, they may form three deep by three paces, and wait their coming up, or advance to meet them. The first files must move a pace sideways, while the second files at same time advance one forward to range themselves, and the two other paces are sufficient for closing.

IF, instead of ranging themselves three deep, they move in order to close the files, and that they have not time to finish, they must, at any rate, face the enemy; the files that are closed keeping

their position, those that had not time to close, must divide and range themselves three deep. A single view of the plate (*Pl. 1. Fig. 3.*) evidently shews that the troops are more powerful than they were before they began the manœuvre, though they had not time to finish it. It is likewise manifest that every man that composes the body moves in the most direct, and consequently in the shortest line, and that his march is not retarded by any complex motion.

OF OPENING OR DIVIDING THE FILES.

THIS manœuvre is performed by contrary motions; that is to say, the battalion is to face to the right and left, and open its files at the distance of one pace. Whoever gives the word of command must take care that the troops face the enemy, the moment the center file is at the proper distance, otherwise there would be an opening of dangerous con-

sequence. Immediately after he must command them to divide, which may be executed in this manner: the soldiers of the first file are each to move one pace to the right, and those of the second a pace forward; this is done in one motion, and with another the rear ranks close on the first, the second rank with one pace, and the third with two.

OF THE PASSAGE OF FULL LINES.

THE passage of full lines is a manœuvre of the highest importance, because it is executed very near the enemy, either advancing or retiring. In both cases length of time and complex motions are the rocks to be dreaded; it is those things that make it impracticable; on expedition alone depends its security; we shall endeavour to demonstrate the shortest method of performing it, by which it may be executed in one third of the time required by the present mode.

LET us suppose the line A followed by the line B, (*Pl. 1. Fig. 4.*) to be advancing against the line E F, on which both the lines A and B are to make an alternate discharge. As often as the line A is to fire, the line B must lengthen its pace, and when the latter is ten or twelve paces distant, the former is to get orders to fire, and instantly after to double its files, without leaving any opening: the line B likewise is to double its files at the same time, and to pass quickly thro' the openings of the files of the line A, which is to move a little to the right, in order to leave them more room; the two lines are to divide immediately after, and range themselves three deep.

HITHERTO the passage of full lines appeared proper only for a retreat; but the method I have proposed makes it equally serviceable in an attack.

THE second line, in crossing the first, does not stop or slacken its pace; each foldier passes from the second line to the first, in the shortest and most expeditious manner possible; he may even present, or advance to the enemy, if necessary, before the smoke of the first line has uncovered his front.

IF the enemy be near enough to fall upon those two lines at the very moment they are passing, they will not be found less powerful or formidable; in such a case the second line would stop and be inclosed by files in the first, and both lines would then form but one line six deep, one half of which would be ready loaded.

PASSAGE OF FULL LINES IN A RETREAT.

THERE is one objection to be made to this manœuvre with respect to a retreat. It may be said, that while the first line is crossing the second, there is

a favourable opportunity for the latter to give way, and throw both lines into confusion. In answer to this we shall only observe, that if the cowardice of troops is to be considered among the various parts of a manœuvre, there never will be a manœuvre that may be depended on ; for in establishing one we are to suppose the troops good.

HOWEVER there are too ways of applying that which I have just now mentioned ; the one obviates the inconvenience which pusillanimity may produce, but is slower ; the other, founded on the bravery of the men, is more expeditious.

As the two lines are retreating, and having notice to pass, the second slackens its pace until the first approaches near, then both face the enemy : the first makes its discharge, and doubles its files, as also the second, which then immediately moves and crosses the first ;

this passage being made, they double their files, and the second by this means becoming the first, falls back a few paces, before it makes a half turn to the right; the first becoming the second, makes a half turn to the right immediately and retreats: This method, we think, removes the objection above mentioned.

BUT to retreat with all the expedition of which the manœuvre is capable, the discharge being made, and the files doubled, the first line is to make a half turn to the right, cross the second, and divide in retiring; the second becoming the first, divides at same time, and retires twenty paces before it makes the half turn to the right to retreat in the manner prescribed. The first of those two methods somewhat retards the retreat of the lines, but it prevents the inconveniency apprehended, which is some amends.

THE second is executed with as much expedition as troops can possibly move.

As often as a retreat is to be made according to either method, the first rank of the line, which keeps its ground to secure the passage of the other, is to present the bayonet; this occupies the soldier, and reminds him of his business there.

OF DIFFERENT FIRING.

IT is generally allowed that the divisions, platoons, or sections, mutually support and protect each other by their respective fire. This opinion requires to be analysed.

PLATOON FIRING.

THE course of this fire begins with the fourth platoon, and ends with the grenadiers; the mutual protection exists during half its course, after which it de-

creases, and is at length reduced to the fire of a single platoon, and such is the condition of the batallion while this fire is continued.

IF the enemy, whom we shall suppose only fifty or sixty paces distant, should, in those circumstances, advance to the attack sword in hand, it is certain they would receive only the fire of three or four platoons, and find the rest defenceless and busy loading. Mutual support and protection therefore is not to be found in the manner of employing the fire in question, and the general fire, notwithstanding its defects, is infinitely better; for, beginning by this, the whole corps would be as soon ready for the second discharge, as the fourth platoon, and the two discharges would be equal to the fire of eighteen platoons; moreover, the second discharge of the fourth platoon makes but the fire of ten, therefore the general fire is to the platoon fire

as eighteen to ten, which is almost two to one.

WE shall now realize the principle of mutual protection, and unite it with the quickness of the general fire.

FOR this end the troops should be accustomed to fire in files as often as orders are given for firing, unless there should be particular orders to the contrary. For example, if a batallion is ordered to present, the first file only should obey the command, and the second should wait a second order to perform it in their turn. By this means the files that have fired are each of them protected by two files, one on the right, and the other on the left, with their pieces loaded, so that let the enemy attack where they will, there are men prepared to give them a warm reception, and the soldiers that are loading have nothing to fear from the enemy's presence. Such is the principle of mutual

protection reduced to practice, and with respect to the rapidity of the general fire, there is nothing wanting to that we have proposed but the first interval between the first fire of the first and second files.

STREET, OR HEDGE FIRING.

THIS fire is for narrow places, as streets, roads, lanes, or alleys, bordered with hedges, ditches, and other obstacles, that contract the point of a column. It admits of more considerable alterations, as a batallion may make three discharges for one in the same street or alley.

A regiment marching in columns in a street broad enough to admit only one division in front, cannot however execute this fire in divisions, as there would be no room for a division to file off either to right or left after a discharge made; the column therefore must have

but a single platoon in front, and even so there will be no room to spare for the filing off of the sections. Here we have a fire one half less considerable than the breadth of the street ; a quarter wheel to the right, left, at the head and tail of the column, and marching forward to occupy other ground, &c. are so many defects against that principle, which would give troops the greatest degree of action, and quickest motion possible. We shall point out a method of reducing those obstacles to little account.

IF a regiment, marching through a street in columns and divisions, should meet the enemy, and be obliged to have recourse to hedge firing, the first division is to keep its ground, facing the enemy, all the others are to make a quarter wheel to the left, drawing up in array against the houses. This motion being made, they are to wheel to the right ; immediately after the commander of the first division gives orders to present and

fire, having first given notice that they are to file off to the right, without any other word of command.

As this division moves off in files by a quarter turn, the second division on its right flank (followed by the rest, who are to file off in turn) files after to take its place, and when it fills the whole breadth of the street, it is to present, fire, and file off in order to be replaced. The first division marches, loading their pieces, until they get on a line with the rear of the batallion, behind which they fall, by a quarter turn on the flank, in order to return to the charge.

By this means the fire is as extensive as the breadth of the street will allow, and consequently twice more effectual than it is according to the established mode. The division that has fired has no motion to make that can retard the fire of the succeeding division. The one files off as quick as the other can cross

the street; the march of the latter to replace the former, is all the interval between one fire and another, and the batallion never stands but while a division is presenting.

FIRE OF A PARAPET.

TO execute this fire without loss of time, the men being six deep, we shall call the files first and second files; the first files are then ordered to make a half turn to the right: the second files to give fire immediately, beginning with the heads, or first of the files, who are afterwards to make two motions to the right, to place themselves in the rear of those who are in the first files, and follow their motions. He that is at the tail of the first file, must, by a motion to the right, take the place of the last of the second file, who advances towards the parapet, to fire in turn. Thus the twelve men, who compose the file, keep up a

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continual fire, and the soldiers load as they are shifting their ground.

WHEN it is thought necessary to discontinue this fire, the usual signal may be given, and the soldiers will leave off.

IF another manœuvre is to be executed, a second round may be ordered, and the fire continued until each soldier has gained his proper station.

FIRE OF SIX RANKS.

TROOPS that are six deep may, in a plain, do great execution with their fire.

THE first rank is to represent the parapet, while the five other ranks are to keep up a continual fire in the manner we have described.

THE fire of the first rank is to begin with the right of each platoon, and to conclude with the left.

OBSERVATIONS ON THE COLUMN.

PREFATORY DISCOURSE.

EVER since the Chevalier Folard has made the discovery of, or has added the column to Tactics, it has been a constant bone of contention to military writers, who were immediately divided in their opinions upon the matter, some defended, others censured it; but both parties were wrong in their manner of proceeding. The latter dwelt too much on defects, from which no order or arrangement can be totally exempt; the former, by useless arguments in its defence, laid it more open to the attacks of criticism: by this means the column was concealed in a sort of chaos, thro'

which its form could scarce be discerned, and still less its properties. Thus, by adhering too closely to trifles, useful systems are decried, and a good cause is often lost by wrong proceedings.

WITHOUT following either party in this matter, let us lay aside all prejudice, examine the different methods of forming the column, consider it when formed, pursue it through all its revolutions, shew its defects without endeavouring to palliate them, and explain, without exaggerating, its advantages; in a word, analyse it so as to reject it without hesitation, if it proves absolutely erroneous, or labour to carry it to perfection if it appears useful.

DEFINITION OF THE COLUMN.

A Number of men placed rank and file on an oblong square may be considered as a column or phalanx. (*Pl. 1. Fig. 5 and 6.*) *Fig.* the 5th represents a column, and the 6th a phalanx: there is, however, no difference between the two; and the different denominations proceed only from the sides that are chosen for the front.

THE line, or side, A B, being chosen for placing the first rank gives it the name of column; but if the first rank is placed on the side A C, it takes the name of phalanx. This method of determining the name of the figure gives the line A B the appellation of head of the column, and the lines A C, B D, flanks or sides, according to the idea of the chevalier Folard. But if all the sides of this figure are composed of the same kind of

men, that by which it marches is to fix the name; therefore it is called column when the men front the line A B, (*Pl. 1. Fig. 5.*) and Phalanx when it turns to the right or left on the lines A C or B D, (*Pl. 1. Fig. 6.*)

No one has hitherto attempted to determine the proportions that should be between the head and sides of the column in an engagement, a thing, however, absolutely necessary to prevent its being confounded with the marching column, or that the too great extents of its sides may not form a phalanx that marches in flank; from whence may be inferred that any column may act as a phalanx, but that every phalanx can not act as a column.

THE order of the phalanx has not the same advantage with the column, because its front is always extended in proportion to the number of men of which it consists, and to the ground that is to be occupied.

ADVANTAGES OF THE COLUMN.

THE impetuosity and violence of the shock of the column is generally allowed, even by those who have been least sparing of their criticism on this regulation.

THE resistance of the phalanx has in like manner been always acknowledged, and every body is ready enough to admit this disposition or arrangement to be the most effectual defence in an open plain, where the efforts of men can only be opposed by power derived from others of their species, and where only the form of the troops, their goodness, the abilities of the officers and the manner of drawing up determine the victory.

IF it be admitted then that the column may act equally as a column or phalanx, the acknowledged qualities of those two methods of ranging troops,

that is to say, the shock of the one and the resistance of the other decides the question, and confirms the superiority of the column over all other orders known.

BUT the physical strength resulting from the depth of its files, which the chevalier Folard calls the weight of its shock, cannot proceed from the order of the column; for then it should consist in the product of the bulk or mass, multiplied by its celerity, and which in physics is defined quantity of motion. But men are not capable of uniting in a mass, in the literal sense, as constituent parts of a physical body; and consequently any order, in which they might form, could never produce such effects. Let us not then be deceived by this illusion; but look upon this violence of the shock of the column to proceed from the human heart, which is always susceptible of impressions arising from circumstances; apparent danger discourages a man and slackens his action; when assistance is near he shews

more ardour and courage. He acts upon the offensive or defensive more cheerfully when followed by twenty men than two; and his attack will ever be in proportion to the degree of courage that determines or accelerates his motion.

DEFECTS OF THE COLUMN.

THE defects of the column are, 1st. the slaughter that an enemy's artillery would make in files that are so deep; 2dly, the difficulty of maintaining order in the interior of so deep a body; 3dly, the lengthening of its files, when the column is to advance or retreat, which hinders the rear from stopping at the same time, or with the same expedition as the head; from turning to right or left and marching without confusion on either of its flanks. The other imperfections to which the column is liable in common with all other figures of Tactics cannot be an object of censure or argument.

HAVING thus duly weighed the advantages and disadvantages of the column, and finding the ballance appears in its favour, it seems unnecessary to use more words in displaying its advantages or lessening its inconveniencies. I must observe however, that hitherto I have only mentioned the disadvantages attending the figure of the column; there are others that spring from the various modes of forming it, and which shall be explained by an impartial discussion.

OF THE METHODS USED, OR PROPOSED,
FOR FORMING COLUMNS.

IT has been a constant endeavour to form the column by the doubling of files, or placing companies one behind another. (*Pl. 1. Fig. 7.*) By doubling the files the depth would increase in proportion to the progression of 3, 6, 12, 24, 48 &c. and the front of the troops should diminish according to the progression inverted; that is 48, 24, 12, 6: which

could only be adapted to one or two determinate numbers, and is a sufficient cause for rejecting it.

IF the companies are placed one behind another, the column will always have the same depth which is 24, and its front will vary according to the strength of the companies; so that if those companies were complete, and that the column was to be formed of two battalions, they would, as a phalanx, be 42 in front and 24 in depth.

A single battalion complete would form a column 21 in front and 24 deep; but if half of the men should be absent, the remaining half would only form a long stripe without power or resistance.

THE spaces left between the companies protract, it is true, this order, and give it in effect the form of a column, according to Folard's system; but it is a marching column, or something worse, because

the sections of the same platoons, or the platoons of the same divisions are no longer together but while they preserve this order. The officers of each batallion, being in two files, may consequently be cut off by a couple of cannon shot; a danger to which no troops should ever be exposed, who, when deprived of officers, are as a body without a soul incapable of any execution.

To so many imperfections, which are admitted in those two methods, we may add the impossibility of settling a proportion between the front and sides of a column; a proportion necessary, however, to its perfection, and which should be such that no changes that can happen in the companies may alter its figure, though they may affect its size.

SUCH are the defects arising from those two methods of forming the column, which, added to those produced by its figure, have brought it into disrepute.

THERE is one observation more to be made on this regulation. The columns we attempt are too great for our files, which require an immense space of time to move to their proper ground, and which, on the right and left of each column, leave vacancies that the enemy may take advantage of, in order to surround and attack them on every side. They are too great likewise to answer the end of their forming; such large bodies are by no means necessary for attacking an enemy, whose arrangement being as light as ours cannot resist a force one half less considerable than that of twenty-four men in files, which is the depth proposed for a column.

IDEAS WHICH THOSE REFLECTIONS OFFER
FOR DISCOVERING A BETTER METHOD
OF FORMING THE COLUMN.

BESIDES the general principles established for all manœuvres there must be others in particular for forming the co-

lumn, viz. 1st, That the head and sides of the column must bear an invariable proportion to each other ; that is to say, as the strength of the companies happens to encrease or diminish, they may be formed into columns more or less considerable ; but that when formed, however, they have all the qualities of a column.

2^{dly}, THAT all parts be so disposed as that order and regularity may be preserved by the vigilance of the officers, and that no confusion ensue either by the form of the columns, the density of the body, the difficulty of communicating orders, or obstacles that may prevent the officers from having a continual eye on the men.

3^{dly}, THAT the companies be ranged and drawn up in such a manner that, after having pierced through the enemy's lines, there may be some in readiness to march to the front, in order to attack

them in flank, to the right and left, without disordering the rest of the column.

4thly, THAT the column may be able to form so near the enemy, and in so short a time, that they cannot suffer from the fire of their artillery ; that the motions be so swift that they cannot be attacked during the operation, and that the divisions, in short, which compose it, be so arranged as to afford each other a mutual defence and assistance, in case they should be attacked.

SUCH are the principles that should be our guides, in the search of a proper method of forming a column judiciously, and of freeing it from that multiplicity of inconveniencies which made it liable to the most melancholy accidents.

OF DIFFERENT SORTS OF COLUMNS.

WE have already remarked that great columns were not absolutely necessary for breaking troops that are ranged agreeable to the system of the present age, and that columns less bulky equally answered the purpose: nevertheless, as circumstances may happen, where great columns become necessary, it will not be amiss to know the manner of forming them, for which reason I have stated columns of various degrees of strength.

THE first species of column we shall denominate column of simple files; that is to say, that the companies which compose it shall be three deep; it shall always have three or six men more in the depth of its files than in the extent of its front.

THE second kind shall be called column of double files, because the files of the companies which form it shall be

doubled; the depth of the files of this column will exceed the extent of its front by six or twelve men.

THE greater columns shall likewise be of two sorts; because they are to be composed of four lesser, and will be in the same proportions that the columns are which compose them.

THOSE different sorts of columns seem to threaten complication and diversity in the methods of forming them; but by a very natural consequence of the principles I have laid down for the manœuvres, for forming the column, all the kinds of columns will pass successively and by regular degrees from one to the other; that is to say, that they will first form columns of simple files, then columns of double files, &c. We shall shew presently the simplicity of the movements by which those changes of arrangements are to be

executed, and how very remote they are from complication and difficulty.

ORDER OF THE COMPANIES FOR FORMING
THE COLUMNS.

IN war time the companies are never complete, and even what men they are composed of are seldom all collected together. At present, as there are but eight companies in each batallion, to supply the detachments, piquets &c. the variations must be more considerable, as this gives rise to very great inconveniencies in the execution of the manœuvres; success, therefore, depending on the good or bad execution of those, it is absolutely necessary to prevent such circumstances as might disappoint and destroy them.

ALL the divisions, platoons, or sections that compose the front of a body of troops should be equal, without which their evolutions cannot be executed with accuracy, in the same space of time; the different figures they may be made to

take cannot be uniform. I have already made appear that the same combination of manœuvres produces sometimes a column and sometimes a phalanx, according to the changes that happen in companies, by which their front is extended or contracted.

Our companies are composed of sixty-three men; yet they would scarce afford thirty or thirty-six for military service on this number; therefore, I found the combination of the following manœuvres.

COLUMNS OF SINGLE FILES.

I Have confined my variation by calculating no more than thirty-six men in each company, a number which, I suppose, will never be wanting. But if there should be more, and in sufficient number, let them be sent to the left the moment the troops form, and there ranged in platoons or other divisions. If

the number, however, of those supernumeraries should not be considerable enough to dispose of them in this manner, then, after sorting them exactly, the surplus of files in each company may be distinguished, if columns are to be formed; and, at the first motion of the companies for the performance of this manœuvre, notice given to them to quit their ranks and disperse on the front of the troops, there fire a few shot, and retire, upon a signal, to the rear of their columns; unless it may be thought proper to order them there at first. However, their disposal on a day of battle must depend on him who commands, and in peace time they should be trained to both methods.

THE companies being thus regulated, a column of single files may at any time be formed in the space of four seconds. Those columns are to consist only of three companies and to be formed after the following manner.

MANNER OF FORMING.

OF the three companies that are to form the column, let the middle A (*Pl. 2. Fig. 1.*) front the enemy, if it is to keep its ground while the two others B C, on the right and left are to make a turn, (*Pl. 2. Fig. 2.*) and draw up in a square behind the wings of the company in front.

IF there was any apprehension of being furrounded a fourth company might be placed at the rear E, of the column, which then would have six men more in depth than in front. This column may be formed in advancing towards the enemy, without stopping, and the man-œuvre need not begin till they are within fifteen paces of them.

AT the word of command, the companies that are to form the heads of the

columns are to continue advancing, and those that are to compose the sides are to move the one to the right and the others to the left, (*Pl. 2. Fig. 3.*) that they may afterwards make a quarter conversion in files, placing themselves in a square, as described above, behind the companies that form the head and that continue advancing with the same celerity as before.

ANALYSIS OF THE FOREGOING COLUMN.

LET us now examine this order, that we may see if the methods pointed out are observed and followed, as well as the general principles proposed for all the various manœuvres.

OF whatever number the companies are composed, provided they are equal, they will always form columns, the sides of which will be composed of the front of a company; besides they will have the depth of the files of that which forms the front of the columns, and of those on the

rear, if it has been thought expedient to place any there.

FIRST OBJECT.

THE six officers or subalterns, closing the files of the three companies, acting in the space between the rear ranks of the two companies of the sides, will keep the interior parts of the column in order, and inspect the conduct of the men.

SECOND OBJECT.

THE companies of the flanks have but one motion to the right or left to make, after piercing the enemy's line *XY* (*Pl. 2. Fig. 4.*) to take them in the flanks of the breach, if they should endeavour to keep their ground after their lines are forced.

THIRD OBJECT.

INFINE the little time required to dissolve or form this column leaves no room to attack it during the manœuvre, or to

annoy it with artillery before it may be dissolved.

FOURTH OBJECT.

IT may perhaps be objected against this little column that all its files are not thirteen or sixteen deep. I grant that four of them will be but three deep; but those that close the files being directly behind them, makes them superior perhaps to those that are sixteen deep. Moreover, I have explained the necessity and advantages of those intervals.

THIS METHOD APPLIED TO A BATALLION.

THE number of companies which compose a batallion, and their strength determine that of the columns which may be formed from them. When they are composed of nine, as at present, (*Pl. 2. Fig. 5. 6.*) each batallion may be formed into three columns, including the grenadier company: this order I call *bastion-columns*.

THIS batallion may be formed likewise into two columns, leaving the three other companies mixed together, or placed near them. The grenadiers are to be left in array on their ground; the three companies on the right to form a column; the fourth to keep its position; the three next to be a column, and the last to keep its ground, as the grenadier company. (*Pl. 2. Fig. 7. & Pl. 3. Fig. 1.*) This order may be called *bastion like*.

THOSE two orders have their advantages, and should be employed according to the different circumstances that are peculiar to each.

WHERE there is but a single line, and the enemy consists of infantry alone, you must advance upon them, leaving the three companies in order of battle a little behind, (*Pl. 3. Fig. 2.*) which should march only to the depth of the last ranks of the columns. They are thus in reserve, their fire supports the attack,

and protects the sides of the columns from the enemy, who might retard or weaken the force of the onset.

If the enemy's line is forced, all that are on the right and left of the breaches are broken at the same time, as they cannot resist the sides of the columns which take them in flank, or the intermediate companies which attack and prevent their operations.

If, after having formed the design and made the necessary dispositions for joining the enemy, any obstacle should oppose it, and that you would make the most effectual use of the fire of the column, this might be effected by drawing up in form of a regular fortification. It is done in two seconds, as there are but four or five paces required to gain the point.

SUPPOSE two battalions, drawn up in columns, advancing to the enemy; (Pl.

3. *Fig. 3.*) to effect the change of order proposed, the companies of the sides are to wheel, in order to range, as it were, in battle array, (*Pl. 4.*) and stop when they have described a little more than one eighth of a circle; the intermediate companies are to place themselves in a line on the angles of the points A, where they will have stopped in their wheeling. This movement being made, the columns represent *bastions*, and the intermediate companies *curtains*. The head of each column is defended by its own fire, which is right before; the fire from the sides of the *bastion-columns*, that are contiguous, defends it also, and farther still, its fire is crossed by the *bastion-columns* more remote. Moreover, the fire of the intermediate companies is a *curtain* fire, and consequently direct; it is crossed by the fire from the sides of several columns, which by that means render those points inaccessible. The sides are likewise divided by the *curtain-companies*, and protected

by the heads of the *bastion-columns*, whose fronts always face the enemy. Thus every part of this living fortification, if I may be allowed the term, is defended by its own fire, and defends all the contiguous parts by which it is reciprocally defended: and in order to demonstrate more plainly the several points where the fires from different parts cross each other, it suffices to suppose four battalions in *Pl. 4*, instead of two that I had taken for an example in *Fig. 3. of Pl. 3.*

NEITHER fixed parapets, lines of defence that are limited, nor outworks, confine either the direction or reach of their fire; but the abilities of the officers who command the sides of the columns direct it at will, according as the enemy advance or retreat. Whenever they come within gun-shot, there is nothing to prevent firing on them; and as the sides of the columns are moving flanks, they change their direction to any point required, and by those motions judiciously

conducted, the same points may be intersected by the direction of the same fire.

THE points liable to an attack in this order are the heads of the columns; for the sides, and the intermediate companies, are evidently protected by it; (*Pl. 4.*) we may see by this plate to how many direct and oblique fires those parts of the enemy's line that would attack the columns must be exposed before they can reach them.

I am very sensible this fire will appear dangerous to many in the execution; it does, indeed, require caution: but it depends as much on the officers who command the companies on the sides, as on the soldiers; the fire must not be quite level, it should be directed so as to pass, at least, twenty paces beyond the troops which it is to flank. Besides, even in fortifications, parapets are no security against a blunder or accident.

A shot fired, in a wrong direction, from one of the faces of a bastion, may kill a man behind the parapet of the half-moon; yet, it is absolutely necessary to furnish this parapet, when the fire of the men posted at the bastion is employed in defence of the fosse of this half-moon. Bastions, counter-guards, lunettes, and all pieces of fortification in general, are exposed to those consequences, not thro' a wrong construction, or any defect in the principles of the art, but because the thing is unavoidable; and there is no guarding against the awkwardness, inattention or blunder of a soldier, who neglects pointing as he ought and making the ball follow the geometrical direction of the line of defence.

The effects of oblique firing is not yet sufficiently known; the chevalier Folard declares it to be the most terrible of all fire, but without explaining himself. It even seems to me that what he would insinuate is impracticable. I conceive

that the sides of the column should level in a position oblique to itself, which would be impossible for all the files to become ranks for the execution of this fire, except the right and left files. Surely troops cannot fire but in a direct line before them. Therefore an oblique fire can mean no other than where the direction is oblique without a regard to the enemy's front, as is that of the sides of the *bastion-columns*. But the reason why this fire should be more destructive than any other is quite simple: if we place ourselves facing the center of the regiment, and throw our eyes directly on it, we shall see a number of vacant spaces, and consequently openings for the passage of many shot; if afterwards we direct our eyes from the same point to the wings, we cannot perceive the least opening through the files, and every ball fired in that direction must take effect. This fire therefore is more destructive than any other, as each shot in that course must necessarily wound somebody.

OF ESCORTS.

IF a regiment of two batallions, or a body of troops, near that number, were to serve as an escort to cross a plain, or to retreat in the midst of enemies, those small columns would be more favourable to them than a hollow square. Having determined the space which the escort is to occupy and which must be either an oblong or perfect square, a small column should be placed on each angle, (*Pl. 3. Fig. 4.*) and the other companies disposed in intermediate order from one column to the other.

THIS sort of hollow square is so formed that it can move with ease and celerity to any side, because the divisions of which it is composed do not embarrass each other, and they are disposed in such a manner that they can at any moment unite their forces and act in concert. If the enemy advances, the columns alter

their directions (*Pl. 3. Fig. 5.*) and by a half quarter turn are ready to face about on every side. By this motion the companies of the fides, by the direction of their fire, protect the columns that are near them and the fides of the square, as we observed in the *bastion order*.

OF MIXING CAVALRY AND INFANTRY.

THE most celebrated captains have successfully blended those two kinds of troops; all authors of merit constantly recommend it in their writings; it is a capital object with them, and by their arguments, and the epochas cited in favour thereof, they seem to promise infallible victory to the party, who knows how to dispose them most advantageously in their order of battle.

In those times when troops were drawn up to a certain depth, this maxim might be followed with a confidence that files

which are but three deep cannot have. A small body of this kind could not be of any great service to the cavalry, and if the latter happened to be defeated, the former would not be able to secure their retreat; besides, previous to a defeat, what assistance could they give to, or receive from the cavalry? Each body charged the enemy directly before them, either sword in hand, or with their fire; the success of each, therefore, proceeded from its own particular behaviour, and on this success depended the service which one might render the other.

CRITICS, not finding in this arrangement that reciprocal assistance they expected, enlarged upon the sad consequences of a defeat; they could see nothing, they said, but the cavalry flying at full gallop, and the infantry left to be butchered in the midst of the enemy's squadrons. This, doubtless, would be a melancholy situation; but every defeat is more or less subject to the like mis-

fortunes, and all the art consists in preventing them.

THE *bastion columns*, which I propose, are equally adapted to remove those inconveniencies, and procure additional advantages to a mixture of horse and foot. I have already explained columns of single files with respect to one batallion, or even two; and previous to giving the form of columns of double files, I shall apply them to two batallions A B, who have two squadrons CD of horse, dragoons or hussars, behind them, and destined to engage together in an open plain, against a body of enemies X Y, (*Pl. 5. Fig. 1.*) equal in number and of the same species of troops.

THOSE two batallions are first to appear in order of battle, and change their disposition according as the enemy advances. The new order they are to take is that of the *bastion columns*. (*Pl. 5. Fig. 2.*) the cavalry then becomes

curtains, defended by those columns. This disposition must be made gradually and with a dispatch proportioned to the enemy's motion. If you are to engage with their cavalry you must wait their attack, or only charge them the moment of their retreat; in case they should be checked or thrown into disorder by your arrangement. If you have to do only with infantry, it is better to advance to attack them, when they are within thirty paces of the heads of the columns.

OBSERVATIONS.

WE must observe that the heads of those columns are so little extended, that they scarce leave room for an enemy to attack them without disordering themselves, whatever might be the effect of such an attack, and consequently little opportunity of marching to attack a second line composed of cavalry prepared to receive, or advancing to charge them in turn. It will not, I presume, be

thought too bold an assertion to say, that cavalry in such order is inaccessible, that is, I mean, sheltered from any attack that can annoy it. I have already shewn how easy it is to make this arrangement, and how brisk and terrible its fire is, on account of its various directions, and the manner in which all those directions cross each other in the enemy's lines. We have further to remark that the cavalry C D, ranged in this order, may with all ease imaginable advance and fall upon the enemy, if an occasion offers, by passing through the spaces marked out between the columns A B. (*Pl. 5. Fig. 3.*) The cavalry having the *bastion columns* directly before them, immediately after their passage are to wheel to the right and left to recover their ground: this, I think, is establishing a mutual protection between those two species of troops.

MARSHAL PUYSEGUR was sensible of the advantages that result from a mutual

protection between cavalry and infantry. To obviate all inconveniencies, he proposed placing four circular batallions at the head of each wing of the cavalry. Those batallions he would have so posted, as that each part should be at the distance of four squadrons from the other; an extravagant distance, and which however the form of a circular batallion requires without a possibility of employing all its fire. For though this distance was sufficient to allow the batallions, without injury to themselves, to fire through the spaces between them; yet one half of their fire must remain useless, as they could not employ it without firing on their cavalry, on account of the figure of this arrangement. Moreover the depth of the files would prevent the use of another fourth part: from thence would necessarily follow the loss of three-fourths of the effect which should be expected from the number of men comprised in this figure. I omit at present entering into a detail of other defects it may have;

I shall analyse it elsewhere with those figures that have been hitherto a subject of Tactics.

COLUMNS OF DOUBLE FILES.

THE strength of companies, according to their present state, renders the forming of those columns more difficult than that of the lesser columns which I have been just now treating of; but as I do not mean to offer any alteration on that head, I shall proceed to suppose the companies that are to form those only seventy-two effective men, that is to say, double the number which the first require; they might however be formed of somewhat fewer men, by a method which I shall hereafter point out.

SUPPOSE then each company is composed of seventy-two effective men, or of twenty-four files, three deep, and that we want to form *bastion columns* of double

files; we must begin with forming *bastion columns* of single files, after which the companies of the sides are to place themselves behind the center company of the head, back to back, the three companies to double their files and close them; viz. (*Pl. 5. Fig. 4 and 5.*) the first on its center, and the two others on the first, leaving, however, the distance of a pace between them and their adjacent flanks, where he that closes the file may stand; those of the two others are to pass to the rear of the column.

THIS column is twelve in front, without reckoning officers, and eighteen in depth. It is quite solid, and may employ its fire equally as well as a column of single files, with this difference, however, that its fire can only represent that of a parapet; because the companies are ten deep. This column, if there be time for forming, may be employed on all occasions where the other could be use-

ful, and with the same variations in the order of battle.

Its formation does not expose the troops, because it begins with forming a column of single files, as it is easy to judge whether it may be safe to continue the manœuvre, or to receive the enemy in that situation; this is the critical moment of the manœuvre: there is no need of any deliberation with respect to a column of single files, as it forms in too short a space of time to have occasion to be divided.

THIS column so formed contains thrice seventy-two men, and its front and sides are not more extended than the first mentioned. Each of them has its advantages and favourable moment.

THE first is in a manner always ready; it forms, it disappears and returns again in the same moment with so much expedition, that it never is a mark for the

enemy but at the very instant it is to attack.

THE latter has the advantage of uniting on the same space of ground double the force of the other; but this union is not here proportioned to the increase; wherefore, unless in particular cases, I would give the preference to the first.

IT may, however, consist of a greater or less number of men; if it is to be composed of a greater, the front of the company that forms the head must extend farther, and the companies of the sides are to separate and leave a vacancy between them, as those that compose the sides of the columns of single files; but if it is to be formed of fewer, some of the files of the center of the company that compose the head must be prevented doubling, (*Pl. 5. Fig. 6.*) and the rest of the manœuvre performed as above. By this disposition a slender va-

cancy would be found in the center of this company of the head, which those that close the files should occupy, and by their presence render superior in strength to any other part of the column.

A COLUMN OF TWO BATALLIONS.

A Regiment of two batallions, drawn up on a single line, cannot form a column in less time than is necessary for the two wings to move to the center, and the troops are exposed all the while as a mark to the enemy's fire. This is another good reason in favour of the method proposed of posting one half of the batallion in the first line and the other half in the second. It may not be amiss to compare here the effects of both methods with respect to the column, in order to shew the disparity more clearly.

If the regiment, which I suppose to consist of two batallions, was drawn up in array on a single line, and that you

would be desirous of forming a column thereof, according to the system proposed, you should begin by drawing it up in *bastion columns*, or else *bastion like*. In either disposition it is in a capacity to engage and receive the enemy, or to continue the manœuvre. If you would have the column full and solid, it is only doubling the files, and the columns are still in a condition to act as the exigency of matters requires. In short those columns march to the right and left to unite in the center and there form the column of two battalions, (*Pl. 6. Fig. 1.*) and can readily halt and make head against the enemy every step they move. Therefore they always move regularly, but unfortunately they are exposed to the artillery and small arms of the enemy, and leave a considerable opening on the right and left, which is more or less dangerous to the column.

BUT this opening, which is a matter of censure, and the time necessary for passing over the extent mentioned, are, by

a defect in the ancient arrangement, twice more considerable than they can be by the above proposed regulation, of placing the two battalions on two lines.

SUPPOSING, therefore, these two lines formed, each consisting of two half battalions, the manœuvre is to be performed after the following manner.

THE moment the word of command is given, the two lines alter their position, and draw up *bastion like*, or in *bastion columns*. (See Page 72) The second then advances to join the first, (*Pl. 6. Fig. 2.*) at the center of which the column is formed by placing four of the lesser columns, two of which are joined by the sides to form the tail or rear ; this method is evidently twice more expeditious than the first.

IN either case if you have begun by forming in *bastion columns*, you will have a large column, accompanied by two

leffer; but if on the contrary you have drawn up *baſtion like*, you will have fix companies that make no part of the column, but which, in time of war, may be uſefully employed on various occaſions.

THIS is the ſhorteſt and moſt ſecure method of forming the greater column, as it is leſs ſubject to miſchance or accident. I would, however, by no means recommend thoſe great unwieldy bodies; but as circumſtances may happen where they would be uſeful, it is not amiſs to know the beſt manner of employing them.

OF THE PASSAGE OF FULL LINES,
THE FIRST BEING THROWN INTO DISORDER.

I Could not introduce this manœuvre in the article of the paſſage of lines, as it depends on the movements that are proper for forming the column, and which could not be explained but in their natural order. The method I then propoſed could only be followed by lines, who had as yet

received no check, and who were to cross each other reciprocally, either in advancing to the enemy, or retiring. The circumstance here supposed is of a quite different nature; nothing is more critical for the second line than the defeat of the first, if it is not in a condition to leave the other a free and ready passage; but how are troops to be ordered to double their files, when the files and ranks are in disorder, as those of the first line in the present case? This manœuvre, therefore, so short and easy on any other occasion, becomes impracticable here; and the preservation of both lines requires we should look out for a better. Those which are actually in use, and which I have mentioned before are attended with equal difficulties: how is it possible to make companies file off on the flanks, and observe the different directions I have mentioned, if those companies no longer retain their primitive situation? How are the sections to execute the manœuvres in order to post themselves one

behind the other, if the troops are in confusion and disorder? In fine, what troops have the time, coolness, or presence of mind necessary for moving to right and left and enlarging the space they are to pass, when the enemies are at their heels, ready to pierce them with their bayonets?

IF any troops have ever extricated themselves from such a critical situation, they certainly owed their escape much less to their own manœuvres than to the ignorance of the enemy, who did not know how to take all the advantage of such an opportunity: however, it is of little importance whether those manœuvres are allowed to be practicable or not; it is sufficient for my argument that they are dangerous and subject to fatal consequences.

NEW METHOD FOR THE RETREAT OF THE
FIRST LINE.

IF we reflect on the situation of these two lines, we may perceive the first is incapable of acting by its disorder, and that it would be impossible for it to make any motion in concert with the second. We, therefore, must have recourse to this alone, and endeavour to dispose it in such a manner, that at the very moment of the passage it may be in a condition not only to receive the enemy, but, likewise, to leave intervals sufficient to prevent itself from being broken or disordered.

THE Chevalier Folard always extricated his first line from this difficulty, by posting the second in several columns; and indeed I see no objection against this method but the great length of time requisite for forming the columns; but supposing them formed, and already ar-

ranged, in that case, they would be safe from the essential inconveniencies attending them, that is to say, from the effects of the artillery, which is silent the moment troops come to close engagement. As soon as ever the columns are formed, they leave large openings to the right and left, through which the fugitives may retreat and recover from their confusion, whilst they, marching forward, charge the victorious enemy in turn, and force them on their second line.

HOWEVER we may dislike his system, I do not see we can deny its great advantages, supposing the manœuvre performed, as I have already said; and how great soever our prepossession may be in favour of it, I do not imagine any person will conclude that those columns may be formed in time, considering the ground they have to pass, if the manœuvre is not to begin till the defeat of the first line; provided even that the two

lines are in a capacity to succour each other.

THE only alteration therefore to be made in Folard's column, with regard to this circumstance, is to reduce the time necessary for its forming; if this reduction results from the manner of forming that which I propose, and secures likewise all the advantages this great master of Tactics expected from his system, it is manifest we have all we can wish from this important manœuvre.

IN order to examine this, let us suppose two bodies A B and C D opposed one against the other; (*Pl. 6. Fig. 3.*) the body A B, consisting of four batallions, is ranged on two lines *m-n*, *p-q*, according to my method; that is, one half of each batallion on the first line, and the other half on the second. The body C D, composed likewise of four batalli-

ons, is drawn up in two lines agreeable to the common method.

THE two first lines attack each other on every side, and the line *m-n* (*Pl. 6. Fig. 4.*) is supposed to be disordered in the shock and put to flight. The line *p-q* advances immediately, forming in small columns of single files; it marches to meet the first line, crosses it, leaving two thirds of its ground for the passage of the other, and falls at same time upon the victorious enemies *C D*, whom it repulses with ease in the disorder they are in, and forces them back on their second line, which must give way with them, if better precautions are not taken than usual. The line *m-n* faces about immediately after its passage, and follows the second, now become the first, and recovers its former disposition. This passage might be effected, even though the distance between the two lines was not more than twenty or thirty paces.

By tracing those two bodies through their respective evolutions and supposing them both equally well acquainted with their own particular methods, we may discover which of the two systems comprises the greatest advantages, and bids fairest for triumphing over the other.

PASSAGE OF TWO LINES, ONE OF CAVALRY
AND THE OTHER OF INFANTRY,
ONE OF THE TWO BEING IN DISORDER.

I Have already shewn how well adapted this new species of column is for a mixture of those two kinds of troops ; it is not less favourable engaging on two separate lines, when one should be under a necessity of returning through the other.

If the cavalry, for example, was placed on the first line, and met with a repulse or defeat, the infantry might change its order as above, and leave the former a free and commodious passage,

without exposing itself; the fronts of those columns are too small and oppose too little extent to the throng of fugitives, to be borne down with them, or retard their retreat.

BUT if, on the contrary, the infantry occupied the first line, and that they were defeated, as I just now supposed the cavalry to have been, it would then be the business of the latter to dispose themselves in such a manner, as that the infantry, in order to rally behind them, might have openings equal to those which I pointed out for the cavalry, when I supposed them obliged to pass through the infantry.

ALL those passages of the lines of infantry and cavalry merit the greatest attention and the most minute discussion. I have already pointed out the method we are to follow in judging of the goodness or utility of a manœuvre. I shall again repeat it here; because it is an object the reader should never lose sight of, if he

would guard against his own prejudices and those of others. We must then examine; 1st, if the time and ground to be passed over are as short and inconsiderable as possible; 2dly, if there is nothing to obstruct the particular action of each soldier, the general action of each separate division, or the united actions of the whole body together; 3dly, if the mutual defence and protection is constantly preserved between man and man, body and body, and horse and foot; the excellency of a manœuvre depends on the application of those principles, and the manner of estimating and judging it should silence the specious and futile arguments of those who frequently condemn or approve what they will not take the trouble to investigate.

WHETHER EITHER OF THOSE TWO SPECIES
OF TROOPS IS PREFERABLE TO THE OTHER?

HAVING had occasion in the preceding chapters, to speak of the cavalry, and of the manœuvres they frequently have to perform in concert with the infantry, I shall endeavour to clear up the doubts that subsist with respect to the pretended superiority of the one over the other.

THOSE, who consider only the impetuosity of a body of cavalry charging a corps of infantry ranged in slender order and without motion, look upon it as naturally impossible for the latter to resist the former: those who reflect on the order of both, and perceive that the infantry opposes more men in front on the same space of ground than cavalry can possibly have, who find they have three men in depth to oppose to two horsemen, and almost two files against one, who see

that each foot soldier has a shot to fire, in a firm position and on a proper level, against the irregular fire of carabines and pistols, disordered by the motions of the horses, and who, moreover, look upon the horse as liable to fear, and always ready to fly from danger, those, I say, who consider all this do not hesitate to give the preference to infantry.

OF all the arguments advanced in favour of the cavalry, the strongest, doubtless, is that propensity of the horse to rush on the bayonet when it is presented him. I never was witness of this phenomenon, which I could scarce believe; but the truth thereof I can no longer question. It is a problem whose solution interests humanity by the two great disproportion there should be between the slaughter made by a victorious cavalry, and the loss they would sustain by a defeat. Besides, this circumstance, though very much in their favour, does not by any means confirm their superiority; it is an advantage

they may turn to account, but if they can be deprived of it, its utility ceases.

IT is true the bayonet at the end of a musket has nothing frightful to the sight of a horse. This weapon presented horizontally creates no emotion in him, because it appears to him as a reed, differing very little from those he is accustomed to see and in a position no way menacing. It is no way surprising that he advances on it without any apprehension of a consequence he is a perfect stranger to.

THE disposition or temper of a horse, on a day of battle is violent, the whistling of bullets and the explosion of the powder terrify him; he is stunned by the clamour and cries, and his sides are torn by the spurs of the rider; all these are more than sufficient to put him beside himself. His rider prevents his taking any other way to avoid those difficulties than by crossing this line of men on

which he endeavours to precipitate himself. It is probable, therefore, that the horse then determines to open himself a passage through this body which seems no way menacing or terrible. He is ignorant of the effects of the bayonet, and springs on it to escape from the miserable situation he is in, and avoid the dangers that surround him. If this reflection be just, and that the cause is really so, the singularity of this phenomenon disappears, and the means of restraining the action of the horse become less difficult.

METHOD OF GIVING THE SUPERIORITY TO THE INFANTRY.

IN those days when the infantry was drawn up to a certain depth, its superiority was not near so equivocal as it is become at present. The length of the fronts of our battalions gives room to continual disorders, which cannot be remedied until they have successively passed from one extremity to the other, and

when a loss happens it cannot be repaired but by making the wings approach; this cannot be effected but by degrees; and after the vacancy made in the center has passed through all the points, both right and left, to the extremities of both wings. All this requires time, and is continually repeated; so that the cavalry are sure to find those openings and this disorder, by which they may break through the infantry whenever they can approach them.

THE lesser fronts are not liable to those inconveniencies. Whatever disorder can happen is soon rectified, as it terminates at the extremities, which are very near: besides, if small bodies have depth in their files, their advantages are thereby considerably augmented; and to this uniting of strength, and the order and harmony so easily preserved in small bodies, the disposition of the horse still adds new advantages. Ever ready and eager to avoid danger he will be for gain-

ing the openings on the right and left of those small fronts ; and though he should not be able to succeed in his attempt, this, however, will occasion disorder opposite the little column.

To demonstrate this proposition, let us suppose a battallion formed in three columns, and attacked sword in hand by a body of cavalry of equal front.

EACH of those colnmns exhibits a front of ten or twelve men, who make thirty or thirty-six for the three columns. The cavalry that comes to attack this battallion find on approaching it only those small bodies at equal distances, and to each of which they can oppose but seven or eight horse in front. It is very likely the horses, on perceiving the openings to the right and left, will endeavour to make their way through them ; the least motion of this nature will be such a disadvantage to their riders as must occasion their overthrow in case they engage.

To all those advantages I shall add my method of charging the bayonet, which will determine the horses to that course. As soon as the cavalry is got within twelve or fifteen paces of the columns, the soldiers of the first rank, who have already charged their bayonets, must raise them with both hands to a level with their hats, the points turned to the enemy, or else they may draw back their hands, and then leaning forward and supporting their bodies on the right leg, push the bayonets against the nostrils of the horses. The heads of the latter will be at the distance of seven or eight feet from the line of the first rank the moment the blow is given, and the riders, who will be at the distance of two feet more, cannot touch the foot soldiers, who are farther protected by the rear ranks.

THE wounds of a sharp pointed instrument given suddenly in a direct line, occasion no great pain for the moment. The horse rushing upon the bayonet is

in this situation ; he is already in the ranks of the infantry before he is sensible of the wound, which is sufficient to throw them into disorder, though the horse and rider should both fall breathless to the ground. The wound meant here is quite different ; its oblique direction tears the skin and muscles, it raises a contusion on the bones, gives instant pain, and reaches far enough to stop the horse, and hinder him from either entering or falling in the ranks. Such a wound is sufficient, I fancy, to stop him quite short.

THOSE who entertain any doubt concerning the effect of the depth of the infantry's files against the cavalry may find them demonstrated in *the first volume of Marshal PUISEGUR's Art of War*. They will find in the notes, " That one reason
 " why it may be said, that infantry was
 " more to be dreaded by cavalry in
 " former days than at present, is, that
 " it had a greater number of ranks :"

though in the Marshal's time it was drawn up in five ranks; yet he looked upon its force as reduced.

It may be urged that infantry is not in a condition to make head even against a small body of cavalry: I would subscribe to this opinion; but it does not follow that cavalry is superior to infantry, as the weak state of the latter is the consequence of a defect in the manner of drawing it up. As this problem has been but imperfectly solved by the respective partisans of those two species of troops, and as each of those, who has written on either side of the question, considered it only agreeable to the system of the age in which they lived: hence various and even contradictory opinions must have been a necessary consequence of the prejudices and manner of thinking of both.

It is not, therefore, by adhering to any particular opinion that we must dis-

cuss the matter: we must consult the testimonies of antient historians, and endeavour to settle the different degrees of progression of the troops, and find out that period and condition wherein they possessed the greatest force. This, I think, is the best method of establishing a probability, which is only formed to give way to demonstration.

OBSERVATIONS

ON THE GREEKS AND ROMANS.

INTRODUCTION.

THE unanimous testimony of historians, and the general consent of almost all writers on military subjects, give those two people the honour of being our masters in the art of war. Very few indeed refuse to look upon them in that light. As to any persons disputing their superiority in this respect over other nations more or less antient than themselves, this is a point quite foreign to my purpose: I confine myself solely to the peculiar qualities of their respective military regulations, so famous heretofore, so different in principles, and so frequently disputing the prize of victory together.

THE number of victories and their various successes are not certainly what

we should collect and consider, in order to decide between them. The Romans, who triumphed, I may say, over all the nations of the continent, frequently met with a repulse, and suffered the most shameful defeats. The people of Greece were likewise victorious over a great number of the same nations, and in the end were themselves obliged to submit to the yoke. Their losses, therefore, like those of the Romans, might proceed from an imperfection in their Tactics, as well as from the inconstancy and caprice of fortune.

CONJECTURES ON THE ORIGIN OF THOSE
TWO MILITARY REGULATIONS.

IT is to be presumed that, previous to the formation of societies, each individual, engrossed by his own particular interest, thought only of defending himself by personal strength, or of invading, by the same means, the property of a more feeble neighbour: private quarrels or

duels, either accidental or premeditated, were all that could result from such a situation.

As soon as societies began to be formed, every individual being equally interested in the general defence, and having the motives of the association still fresh in memory, was eager to dispute the victory against an enemy, or was obliged to share the common danger with his associates; nothing could result from such a disposition, in those early times, but the arrangement of associates, side by side; that is, on a single rank or line. Experience shewed afterwards, that men, overthrown or put to flight in any part of the rank, left openings or breaches which the victors took advantage of to assist their friends, by turning on the enemy to the right or left. This inconveniency was too important to escape the attention of society, and set them upon contriving means to remedy it, the idea of a second rank necessarily resulted from

their reflections. Then a third rank was formed and afterwards a fourth; and the art of combinations being then unknown, or at least quite in an infant state, men were at a loss to determine a depth proportioned to the extent of their front; this progression was therefore continued, and carried to such an immoderate degree that its excess was at length obvious to every eye.

THIS, I think, is the most natural idea of the origin of the order of the phalanx, and what makes it still more probable, is, that from time immemorial we find it has been in use among all the people of the earth, that we know of. It belonged equally to all nations, and the Greeks only had the honour of improving it.

THE Roman discipline, unknown till the foundation of their republic, neither had, nor could have, so ancient or

so natural an origin. Art, experience and a kind of creative genius were what gave birth to the noble discovery. “ It “ was some divinity sure (cries Vegetius in transport) “ that inspired them with “ the form of a legion.” Polybius, who was a Greek by birth, and who passed the greater part of his life among the Romans, where he formed the conqueror of Hannibal, was equally well skilled in the Tactics of his own country and those of Rome.

THIS historian, so intelligent in the art of war, has, in the 17th book of his history, drawn a parallel between both disciplines, which I shall insert here. The authority of so respectable a writer is important to my subject, and his manner of analysing both leaves me but little to say, and will even obviate those objections that might otherwise be made.

“ FORMERLY the military discipline “ of the Macedonians was superior to

“ that of Asia and Greece. This is a
 “ fact which the victories it has produc-
 “ ed will not suffer us to call in question;
 “ and there was no discipline either in
 “ Africa, or Europe, but what gave
 “ way to the military skill of the Ro-
 “ mans. In our days, when those dif-
 “ ferent orders of battle are frequently
 “ opposed to each other, it may not be
 “ amiss to examine in what the dispa-
 “ rity consists, and why the advantage
 “ is on the side of Rome. Probably,
 “ when we are thoroughly acquainted
 “ with the matter, we shall no longer
 “ think of attributing the success of
 “ events to chance or fortune; and that
 “ we shall not applaud the victorious
 “ without cause, as is usual with people
 “ of little experience; but accustom
 “ ourselves insensibly to praise only from
 “ principle and reason.

“ I HARDLY think it necessary to ob-
 “ serve, that we must not judge of those

“ two methods of ranging troops by the
“ battles fought between Hannibal and
“ the Romans, and the victories he ob-
“ tained. It was not by the particular
“ arrangement or arms of his troops that
“ Hannibal was successful; but by his
“ stratagems, cunning and address. We
“ have clearly proved this in the recital
“ we have given of the battles he fought;
“ if other proofs are desired, it is only
“ casting an eye on the success of the
“ war. The Roman troops no sooner
“ had a general of equal abilities at their
“ head, than victory declared in their
“ favour. Hannibal himself was sensible
“ of their superiority, when immedi-
“ ately after the first battle, he laid aside
“ the Carthaginian arms, and having
“ made his troops arm themselves after
“ the manner of the Romans, never
“ once failed to use them in the sequel.
“ Pyrrhus did more; for, not content
“ with the arms alone, he even employ-
“ ed Italian troops in the battles he
“ fought with Rome; he ranged one of

“ their companies and a cohort alternate-
“ ly, in form of a phalanx. However,
“ this mixture was of little use towards
“ gaining a victory: all the advantages
“ he obtained were at least equivocal.
“ It was necessary to prepare my readers
“ in this manner, that I might not offer
“ any thing to their imagination, which
“ might appear inapplicable to what I
“ shall say hereafter. I come now to the
“ comparison between the two different
“ orders of battle. It is a positive fact
“ and may be supported by numberless
“ arguments, that, as long as the pha-
“ lanx preserves its proper natural state,
“ nothing can either resist its front, or
“ support the violence of its shock.
“ According to this arrangement the
“ soldier in arms occupies the space of
“ three feet, his lance was sixteen cubits
“ long. It has been since curtailed two
“ feet, in order to make it more handy
“ and convenient: being thus contracted
“ there remains, from that part where
“ the soldier holds it to the end which

“ passes behind him, and which serves
“ as a counterpoise to the other extremi-
“ ty, four cubits, and consequently if
“ the lance is pushed with both hands
“ against the enemy, it reaches ten cubits
“ beyond the soldier who so pushes it.
“ Therefore, when the phalanx is in
“ its proper situation, and the soldier
“ who is on the side or behind unites
“ with his neighbour as he ought, the
“ lances of the second, third and fourth
“ ranks extend beyond those of the fifth,
“ which project no more than two cu-
“ bits farther than the first rank. We
“ see then that beyond the first rank
“ there are five lances gradually decrea-
“ sing two cubits in proportion to their
“ distance from the fifth rank. As the
“ phalanx, therefore, is ranged sixteen
“ deep, we may easily figure to ourselves
“ what must be the shock, weight and
“ power of such an arrangement. It is
“ nevertheless true, that, beyond the
“ fifth rank, the lances can be of no in-
“ jury to an enemy; nor are they,

“ therefore, projected forwards, but
 “ rested on the shoulders of the rank be-
 “ fore with the points upwards, that
 “ thus crowded they may break the vio-
 “ lence of arrows which pass beyond the
 “ first ranks, and might otherwise annoy
 “ those that follow: the hind ranks,
 “ however, have their advantage; for in
 “ advancing to the enemy they push and
 “ press those that are before, and put it
 “ out of their power to turn their backs
 “ on the enemy. Having considered the
 “ whole together, as well as the parti-
 “ cular parts of the phalanx, let us now
 “ examine the qualities of the arms
 “ and discipline of the Romans, that we
 “ may draw a parallel between them and
 “ those of Macedon.

“ THE Roman soldier, in like man-
 “ ner, occupies but three feet of ground;
 “ but as he is obliged to be in motion in
 “ order to cover himself with his buck-
 “ ler, and strike with the edge or point
 “ of his sword, between each soldier of

“ the legion, either on the side or behind,
“ there must be an interval of at least
“ three feet, if we would give him room
“ to move with ease and freedom. Each
“ Roman soldier, when he attacks the
“ phalanx, has ten lances to force.
“ When he comes to close he cannot
“ force them either by cutting or break-
“ ing, and the ranks which follow
“ him cannot give him the least assist-
“ ance. The violence of a shock would
“ be equally useless, and his sword could
“ be of no effect. It was right, there-
“ fore, to say, that the phalanx, as long
“ as it preserves its proper and natural
“ state, is invincible in front, and that
“ no other order of battle can withstand
“ its force. Whence comes it then that
“ the Romans are victorious? Why is
“ the phalanx overthrown? The reason
“ is, that in war the times and scenes of
“ action are subject to vary in number-
“ less circumstances; and that the pha-
“ lanx is proper only at one time, in
“ one place and after one particular

“ manner. When a decisive action
“ comes on, if the enemy is obliged to
“ engage at a time and in a place suited
“ to the phalanx, as we have already said,
“ there is every reason to conclude, that
“ the advantage will be on the side of
“ the phalanx. But if both can be ea-
“ sily avoided, what is there so very for-
“ midable in this arrangement? It is
“ acknowledged, on all hands, that, in
“ order to reap advantage from the pha-
“ lanx, it is necessary to find a flat and
“ open plain, free from hedges, ditches,
“ marshes, defiles, eminences or rivers.
“ On the contrary, it is as readily allow-
“ ed, that it is impossible, or at least ex-
“ tremely difficult, to find a piece of
“ ground of twenty furlongs, or more,
“ without having some of those impedi-
“ ments. What use will you make of
“ your phalanx, if the enemy, instead of
“ attacking you in this fortunate situa-
“ tion, disperse themselves about the
“ country, plunder your cities, and lay
“ waste the territories of your allies?

“ This body, continuing in its advanta-
“ geous situation, far from being of use
“ to your friends, will not be able even
“ to preserve itself. The enemy, masters
“ of the country, finding no person to
“ oppose them will intercept its convoys
“ on every side. If it quits its post, in
“ order to undertake any thing, its
“ power and strength are at an end, and
“ become the sport of the enemy. Ad-
“ mit even they were attacked in this fa-
“ vourable situation, if the enemy does
“ not attack the phalanx with their
“ whole army at the same time, and
“ that at the moment of engaging they
“ should draw back, what will become
“ of your arrangement ?

“ It is easy to judge of this by the
“ manœuvres now in use among the Ro-
“ mans ; for we do not build on mere
“ arguments, but on facts, that are as
“ yet quite recent. The Romans do not
“ employ all their troops to form a front
“ equal to the phalanx ; but they keep
“ one part as a body of reserve, and lead

“ the other against the enemy. Then,
 “ what happens? Either the phalanx
 “ breaks the line opposed to them, or is
 “ itself broken, by which means it quits
 “ its proper order. Whether it pursues a
 “ flying enemy, or retreats before a
 “ victorious army, it equally loses its
 “ power; for, in either case, there
 “ must be intervals or openings made,
 “ which the body of reserve seizes to at-
 “ tack them, not in front, but in flank
 “ and rear. In general, therefore, since
 “ it is easy to avoid the time and all other
 “ circumstances which give the advan-
 “ tage to the phalanx, and that it is not
 “ impossible for the latter to shun all
 “ those that are unfavourable, is it not
 “ enough to make us conceive how much
 “ those arrangements fall short of the
 “ discipline of the Romans? To this we
 “ may add, that those, who are not rang-
 “ ed in the order of a phalanx, are rea-
 “ dy to move to any side, can incamp,
 “ seize upon advantageous posts, attack
 “ or defend garrisons, or fall unexpect-

“ edly on an enemy in their march;
“ for all those things are comprised in
“ the art of war and success often de-
“ pends on them, or, at least, they
“ greatly contribute to it. Now, on all
“ such occasions, it is difficult to employ
“ the phalanx, or it would be of no use;
“ because then it could not engage in
“ cohorts, or man to man; whereas the
“ Roman arrangement, in such circum-
“ stances, is not in the least embarrassed
“ or at a loss. Every place, every sea-
“ son is suitable to it, the enemy can ne-
“ ver surprise them, let them attack on
“ what side they will. The Roman
“ soldier is always prepared for combat,
“ either with the whole army, with
“ some of its parts, with a single com-
“ pany, or man to man. With an or-
“ der of battle, all the parts of which act
“ with so much ease and readiness,
“ should we admire if the Romans, in ge-
“ neral, meet with better success than
“ those who engage in a different man-
“ ner? I thought it incumbent on me

“ to treat this subject thus amply, be-
 “ cause the greater part of the Greeks, at
 “ present, look upon it as a kind of pro-
 “ digy, that the Macedonians were de-
 “ feated, and that others are still at a
 “ loss to know how, and why the Ro-
 “ man order of battle is superior to the
 “ phalanx.”

CAN any thing be urged more deci-
 sive in favour of the Roman discipline,
 or more conclusive for what I have ven-
 tured to advance with respect to its ori-
 gin; that is to say, that it was the work
 of art, experience and genius.

SHOULD any person look upon as a
 paradox what I have advanced in the be-
 ginning of those observations with regard
 to the particular action of the soldier, and
 its influence in military operations, he
 will be of another opinion, if he gives
 the least credit to this recital of Polybius.
 The Romans were not superior to other
 nations either in size or strength of body.
 It was not to nature therefore they were

indebted for the action they displayed, when each soldier of theirs, by a principle of Tactics, fought against ten Greek soldiers in the phalanx order. It avails nothing to say that the effects of the lances of the second, third and fourth ranks decreased in proportion as they were more distant from the first rank, it will always remain a fact, however, that one Roman soldier fought against two of the men of the first rank of the phalanx, besides all the assistance that the four following ranks could afford them. To what can we attribute this surprising behaviour unless to discipline and principles by which the soldier had been trained and formed.

THE weapon of our soldiers has a nearer affinity to the lance than to the sword and *pilum* of the Romans; but it does not follow from thence that we should range our troops in the order of the phalanx. The musket with the bayonet is much shorter, and consequently more

easily managed than the lance, and the soldier who uses it either loading or charging the bayonet, must necessarily be in motion. This requires some space, which, I think, I have determined in the article of the use of arms. It is the compact, not the crowded order of the Greeks that suits us.

WE shall now consider what there is of importance to be observed with respect to both arrangements, and which equally concerns the British nation. It is on one side the too close union of forces, and the too much contracting the general action of a body of troops by crowding men one upon another; and on the other side the free and easy play of the springs of the different actions, moving without constraint, uneasiness or opposition in the successive and repeated attacks as they are seen on the plate.

THE Roman Legion, according to Polybius, was composed of ten cohorts, and each cohort of three *Manipuli*, viz. one of *Hastati*, of 100 or 120 men, another of *Principes* of the like number, and the third of *Triarii* consisting only of half the number. The *Hastati* and the *Principes* were drawn up ten or twelve in front, and ten or twelve deep, and the *Triarii* were but of half the depth, but always of a front equal to the two others.

THE ten *Manipuli* of the *Hastati* formed the first line, with spaces between them equal in the whole to the extent of their front. The ten *Manipuli* of the *Principes* composed the second line, and were posted opposite the intervals of the *Hastati*. The *Triarii* formed the third, and were placed behind the *Hastati*, and facing the intervals between the *Principes*. Such was, according to Polybius, the order of battle of the Roman legion.

I have already given the order of the phalanx, in the article of columns, and as Polybius does not suppose it susceptible of more manœuvres than I have allowed it, (*Pl.* 7.) I shall only give it simply on the plate, where I shall endeavour to shew the movements of the two bodies during an engagement.

THE light troops, who always began the attack, having retired between the openings of the *Hastati*, the latter immediately advanced and charged the phalanx, each soldier of the *Manipuli* moving directly against that portion of the enemy opposite to him; the *principes* that followed were a check upon the parts of the phalanx that faced the openings of the *Hastati*, and hindered them from attacking those in flank.

IF the *Hastati* succeeded in their attack the whole front of the phalanx was defeated without resource; but if, on the

other hand, they happened to be repulsed, they retreated through the spaces between the *Principes*, and went to rally behind the *Triarii*. The *Principes* then advanced upon the phalanx, and attacked it precisely in those parts of the fronts that were spectators of the first conflict, while those who had been engaged kept their ground and recovered from their disorder. If the *Principes* met with no success they retired through the intervals of the *Triarii*, who immediately advanced, and charged those portions of the phalanx that had already been at blows with the *Hastati*. It is certain the *Triarii*, who were the flower of the army, and who were fresh, had great advantages over the soldiers of the phalanx, who, as I have said, had been in action before.

THE *Hastati* returned to the charge, and the same attacks were successively repeated as often as the intrepidity of the soldiers, the conduct of the officers and the resistance of the phalanx made

it necessary. As then, according to Polybius, the strength of the phalanx depended on the ground which should be level and proportioned to its extent, and on the order and regularity of the motion of all its parts; so many attacks must inevitably sooner or later occasion some disorder, and consequently bring on a defeat; because there was no resource or protection under cover of which it might be reinstated. The Roman *Manipuli*, on the contrary, mutually protected each other, and had, for recovering themselves a length of time, which, compared with that the soldiers of the phalanx might make use of, was as three to two. “Whether it pursues a routed enemy or retreats before victorious troops, &c.” (see Page 127.) This conclusion admits of no equivocation, and that which Polybius afterwards gives in favour of the Roman discipline is equally positive: “All places, all seasons are suitable to it, &c.” (see Page 128.) Having

thus, on the authority of Polybius, stated the superiority of the Roman discipline over that of the Greeks, it will not be improper to seek the origin of the Tactics of our own times, to examine their qualities, and compare them with both of these different regulations, that we may be better able to judge of their excellency, or of the necessity of an alteration.

OBSERVATIONS

ON THE TACTICS OF EUROPE.

IN the time of the Romans, the Gauls and other nations on the continent fought in the phalanx order. It is this order which still prevails through all Europe, except that it is deficient in the advantages and utility which Polybius ascribes to it, and is injured and disgraced by defects unknown in the ancient phalanx.

IN Turenne's days troops were ranged eight deep both in France and Germany. Thirty years after, in the time of Puysegur, the ranks were reduced to five, in the last Flanders war to four, and immediately after to three.

THIS part of the progression from eight to three being known, we easily conceive how the files of the phalanx had been diminished from sixteen to eight, in the

ages preceding Turenne. It is to be presumed that this depth was considered as a superfluity, and it was judged necessary to curtail it, in order to extend the front. However, the motion is of very little consequence, we are now reduced to three ranks; let us endeavour to find out what qualities of the phalanx have been preserved, and what might have been added thereto.

To shew that we have preserved the defects of the phalanx in Europe, I suppose two bodies of troops, one of eight thousand men, ranged as a phalanx, sixteen deep; the other a regiment of three battalions, consisting only of fifteen hundred men, drawn up in three lines, after the same manner. Those two bodies shall be perfectly equal and alike in extent of front, and shall differ in nothing but in the depth of their files: the inconveniencies and defects, therefore, occasioned by the length of the fronts are equal in both troops, though their

numbers are very different; hence it follows, that, in Europe, the essential defects of the phalanx are preserved and its advantages lost.

LET the files of this body, of eight thousand, be afterwards divided, and let it be reduced to three in depth, its front will then be found five times more extensive, and its depth five times less: we may, therefore, conclude, that the defects of the phalanx are evidently multiplied in the discipline of Europe, at the expence of its advantages which consisted in the depth of its files.

THE progress of the artillery has contributed greatly to this revolution. As cannon multiplied it was necessary to avoid its effects, and the only method of avoiding, or at least lessening them, was doubtless to diminish the depth of the files.

THE musket, likewise, has a great share in the alteration; the half pike was entirely laid aside for the bayonet; and in order to have no fire unemployed, it was thought necessary to put it in the power of every soldier to make use of his.

THOSE are, I think, the two principal causes of the little solidity or depth given to our batallions.

WE have now seen that the defects of the phalanx were multiplied in the European discipline, and its advantages and perfections infinitely diminished. Our regulations are, therefore, much inferior to the phalanx, and have nothing but the single effect of fire arms to counterbalance all its advantages. The effect, however, of fire arms is an artificial power, and does not originally belong to the manner of disciplining troops, the sole aim of which should be to employ man's natural action. It is man, therefore, and not this fire, which is to be considered as

the principal agent ; from hence we may, I think infer that, this method is very much inferior to the phalanx, and still more to the Roman arrangement, which so far surpassed that of Greece. The light troops of both those people were much heavier than our battallions, and had more power and solidity for a shock or conflict. However, the Roman discipline, notwithstanding its superiority, is not calculated for our times ; because, as we are obliged to engage at a distance, ours, by its cannon would destroy the Grecian order of battle in a very short time, and would be exposed to a loss much less considerable itself, supposing even the artillery was equal on both sides ; we should then, in order to perfect our arrangements, endeavour to procure them all the advantageous qualities of the legionary regulations, as the only means of giving them the superiority.

MANY people are of opinion that we imitate the Romans, and that we give

battle according to their system, because our troops are drawn up in lines some of which are full and others vacant. But I have made appear that three battalions have the same front and the same inconveniencies that eight thousand men ranged in the phalanx order. Our lines are formed by brigades, regiments or battalions, and the distance of one corps to the other is equal to the front of one of those corps: so that those lines, both full and vacant, are composed of detachments equal in front and in defects; each has a phalanx of six, eight or twelve thousand men. Our orders of battle consequently can be no more at most than a kind of medium between those of Rome and Greece.

OBSERVATIONS ON THE CHARACTER
OF THE NATION.

WHATEVER may be the physical or moral cause of the diversity we find in the genius, character and sentiments of

different nations, its existence is not the less real, and deserves the greatest attention in discussing a system of Tactics. Man, beyond dispute, is the principal agent in war, and his character, temper and inclination have a necessary influence in military operations. The phlegmatick is always for reflecting before he acts; the lively active spirit is for immediate action. Gravity is required in the motions of an army of the first; an army of the latter, should have wings, if possible. The French Nation has at all times been considered as lively and active; and the violence of their shock has been always formidable to its enemies, and made use of by the greatest men, who well knew its efficacy and power. He, therefore, who would lead French troops to battle, by slow and complicated movements, would but shackle, and destroy their most useful powers: he, on the contrary, who would lead them by simple motions, suited to their disposition, would give an opportunity to their most

secret springs to display themselves with all the force and vigour which are natural to them.

THIS alternative shews, how dangerous it is for one nation to adopt the manœuvres of another, before it has previously considered whether they are adapted to the national spirit and character: for, though a manœuvre is geometrically the same to one as the other, its affinity to the national spirit will always be on the same side, and determine the balance. The most considerable nations of Europe imitate each other, and mutually give one another positions and movements: this is, certainly, a good maxim; but we should be careful not to abuse it. The French nation indisputably differs most from all the others, and this difference is so great that it is not possible for the same system of Tactics, executed alike in every point, to be equally proper for her and her neighbours.

Let us now consider the system which I propose for her.

OBSERVATIONS ON THE SYSTEM PROPOSED
IN THIS WORK.

WE must call to mind here, 1st, the superiority of the Roman discipline over that of Greece, a superiority founded on the first principles of the soldier's instruction, and afterwards on the arrangement of the *Manipuli*, or companies, in their order of battle, on their successive attacks and secure retreat.

2dly, How much inferior our system is to the order of the phalanx, from whence it is borrowed, and consequently to that of the Romans which triumphed over the phalanx.

3dly, That the Roman discipline would be impracticable in our days on account of the artillery, and ours is that

which is least exposed to its slaughter: a system that would comprize both these properties, would be, doubtless, best adapted to us, and should be the object of our enquiries.

LET us now consider the principle which I have laid down for the perfection of the greatest degree of action in a man and in a body of troops, and we shall find it entirely analogous to that of the Romans.

LET us reflect a moment on the principles which I have established for the elementary manœuvres, and we shall see that the different kinds of fire, which I have demonstrated, are more certain, more expeditious, more brisk, and consequently more adapted to the character of the nation.

IF my dissertation on columns be examined, it will appear that the system I propose comprizes, at same time, the

property of our present Tactics of advancing to the enemy three deep, with that of the Roman order for the conflict.

IF any person should object that this line is not of equal force in all parts, as that of the Romans, I answer that the sides of the columns protect the intermediate companies, which are only three deep, and which are in some sort in the second line; that they mutually protect, each other in protecting themselves, that they answer the purpose of blending the two species of troops better than any other regulation, that they draw up in defensive order with more regularity and precision, and in a manner infinitely superior to what the Romans made use of in a last resource.

LET us attentively weigh the genius of the nations, considered at all times by the greatest masters as totally different

from that of its neighbours, and we shall see that this system, or at least its principles, are best adapted to it. All other nations might make use of it with all the care and exactness requisite: but should not, therefore, expect to reap the same advantages in war.

OBSERVATIONS ON THE CHANGES
OF THE FRONTS.

CIRCULAR movements had such visible defects, that it is surprising people were so long deliberating on the means of avoiding them. A body of troops performing this manœuvre moves as the radius of a circle, one extremity of which is fixed in one point, whilst the other by a circular motion describes the circumference or conversion.

EACH of the soldiers, who compose a body of troops that are to make a quarter wheel or any other arch of a circle, describes, at the same time with the body,

and about the common center, an arch of the same number of degrees; but all those arches, though they are equal as to the number of degrees, are not so with respect to the space of ground they are to pass over; those spaces are in the same proportion together as the distances from the center, or pivot, are to those that describe them; so that, as a body is to move uniformly and without breaking its ranks, the soldier, who is nearest the pivot, and who has only two paces of ground to pass over, cannot arrive sooner, or be in a condition to receive the enemy before the man at the extremity of the wing: the design of the manœuvre is to give the front of the troops a different direction from what it has, and the most pressing motive for such a change is, certainly, the appearance of an enemy on one of the flanks: this manœuvre is, therefore, of great importance, and the most expeditious manner of performing it should be strictly inquired into, and

examined with the most scrupulous attention.

THE slowness, the irregularity, and pressing of the files are, likewise, unavoidable defects in circular movements; and the only advantage they have is the being always in array whenever it is thought necessary to make a stand.

THE new method has not this advantage; but as it obviates so many other inconveniencies, and is, moreover, founded on the principles of the art, we must endeavour to place it beyond the reach of this difficulty; it has been too well received by the military to let its best properties remain any longer unknown.

THIS manœuvre begins by a quarter wheel in platoons, or, which is the same thing, by arches of a circle of 45 degrees; they are to move afterwards to the ground appointed, without any other precaution, than, as soon as they have

reached the place, to range themselves in a line on the right or left, according to the side on which the change of front is to be made: this, in a few words, is what has been hitherto practised of this evolution.

GENERAL RULES FOR THE EXECUTION
OF THIS MANOEUVRE.

WE must begin by making the platoons describe arches some degrees less than the half of the arch of conversion or circumference, which the body is to make; after which the platoons are to march without turning to right or left, their pivots in a proper line, (*Pl. 8. Fig. 1.*) until they arrive alternately behind their respective posts, where they are to complete their conversion, in order to advance directly forward on a line with those who preceded them: a single example will suffice to make this intelligi-

ble in the different changes of front which I propose giving.

SUPPOSE then a batallion has a quarter wheel or conversion to make, or a change of front of 90 degrees, the platoons should be made to describe arches of about forty degrees, and afterwards march in a direct line to the depth of the ground designed for each of them, where their officers are to see that they describe the remaining 50 degrees that are to complete the manœuvre. All those movements are marked on the *Plate 8, Fig. 1.*

OF THE DIFFERENT CHANGES OF FRONT,
WHICH A BATALLION
MAY HAVE OCCASION FOR.

THE batallion XY is supposed abandoned in the middle of a plain, without knowing on what side it may be attacked; (*Pl. 8. Fig 2.*) the enemy may advance equally against it either in A, B, C, D, E, F, or G; each of those eight

positions will oblige the batallion to change the order of its front, in order to receive them on a parallel line; and each of those changes of front must be executed differently. There are likewise as many similar arrangements to be supposed on the right; but as they must be executed after the same manner, it is superfluous to repeat them.

ON THE TWO FIRST POSITIONS, *A* AND *B*.

IF the enemies appeared on the line *A*, both bodies would be on parallel lines, and the batallion then would have no change of front to make. But if, on the contrary, they advance on the line *B*, the batallion must make a change of front, whose angle of conversion will be 90 degrees; the manner of executing it is particularly related in the article of the general rule; and traced on the *Plate 8, Fig. 1.*

MANNER OF PROVIDING AGAINST ACCIDENTS
WHICH MAY
HAPPEN IN THIS ARRANGEMENT.

WHETHER the enemy appears at first in two divisions, one in A, the other in B, or whether, after the manœuvre is begun, those that are in A, appear and march to charge it in flank, broken as it is in platoons; still, the batallion is in a condition to chuse which of those two bodies it shall make head against. For this purpose the platoons that have not as yet reached their ground are ordered to describe arches of conversion, contrary and equal to those they had made for beginning the manœuvre: by this motion the batallion forms a square, (*Pl. 8. Fig. 3.*) one half ranged in array facing B, and the other half in the same condition opposite A.

WE are very sensible such a position is critical, and that some resolution must be taken. That of retreating would be the

most difficult to accomplish, if the two divisions of the enemy are not inexpert enough to suffer themselves to be left together on one side, by letting the battalion slip away from them: but as we must not depend on such neglect, and only consider the battalion with one of the divisions hovering about, and closely followed by the other, and exposed perhaps to the fire of their cannon; the best thing that can be done is to charge with vigour the body of the enemy that is nearest, and whose defeat may be most advantageous. However, the attack being resolved upon, the proximity of either division, the nature of the ground, the commission with which he is charged, the retreat in case of accident, and some other objects are to determine the commander in his choice of the side which he shall attack.

THE manœuvre, performed by the platoons on the right, seems to shew the enemy on the side A very near, or ad-

vancing to attack them ; (*Pl. 8. Fig. 4.*) in this case they must resolve upon advancing to receive them.

As soon as this resolution is taken, the three companies on the right are to form a column of single files ; the fourth in the usual order, remains as it is, and all the companies on the left are to divide by quarter conversions to the right, and only form a marching column, if they have not time to draw up in another manner.

THIS movement is natural, simple and uniform ; it is inspired in a manner by instant necessity ; and the time necessary for its execution is only what the platoons employ in making their quarter conversions ; which is, indeed, very short, and the enemies, who imagined this batallion in disorder, must be greatly surpris'd to see it advancing upon them in much better order than themselves ; because, supposing valour, action

and all other circumstances equal, this small front, ranged as it is, must break through the light and slender arrangement of a body of troops that is only three deep.

ARRANGEMENT FOR ATTACKING IN B.

IT may happen that the enemies troops on the side A are still at sufficient distance to give room to attack those on the side B the first; but that the manœuvre cannot be completed without too great a loss of time, or without danger to the flank in extending towards A. The platoons on the right, instead of ranging in array as above, are to form a marching column, by only concluding the quarter conversions they had begun in their first situation. The four companies on the left, who are already in array, are to form at the same instant a small column of single files, (*Pl. 8. Fig. 5.*) leaving one company in order of battle on the left, and to advance in this order to at-

tack the enemy sword in hand at the point B.

REPETITIONS are always tiresome, to avoid which I must here prepare the reader and inform him that the two arrangements just now given are applicable in all the changes of front I shall have occasion to speak of in the sequel, and are to serve as a rule in all similar cases.

CHANGE OF FRONT FOR RECEIVING THE
ENEMY IN C.

THE batallion X Y is supposed to be attacked at the point C, where the enemy seems disposed and is ready to pour upon it. In this case there is a choice of two contrary movements; the one is a *change of front* for advancing to receive them, the other for retiring.

IF the batallion would advance, it may be done by moving to the line XS, (*Pl. 9. Fig. 1.*) or, if it would rather retreat,

it is only shifting its front back and moving to the line Y T. In either case the angle of conversion is only about forty five degrees, and the platoons, in order to begin it, are to describe arches of about 20 degrees, and the remainder, when they arrive, as I have already observed. With regard to a choice it depends entirely on the eye and intelligence of the commander.

CHANGE OF FRONT FOR RECEIVING THE
ENEMY IN D.

SHOULD the enemies appear suddenly in order of battle at the point D, opposite and very near the left flank of the battalion, the best resolution it could take would be to draw up in a marching column by quarter conversions in platoons on the left, (*Pl. 9. Fig. 2.*) and to detach a company to the right and another to the left a little to the rear, to keep the enemy's wings in awe. I should wish, likewise, that in advancing to the enemy,

some of the companies at the rear of the column would separate from it, in order to post themselves, as a reserve, on the right and left, to cover a retreat in case the attack should prove unsuccessful.

If there is sufficient time and that it is thought preferable, you may draw up in array by a change of front on the center. This manœuvre may be equally well performed in a column or in order of battle.

To execute it in array, the half battalion of the left makes a half turn to the right, (*Pl. 9. Fig. 3.*) after which each platoon describes the necessary arch of conversion, in order to march afterwards to the ground appointed.

To perform it in a column, the platoons of the head shall make a half turn to the right, and like those of the rear, describe the necessary arches, and move afterwards to post themselves in array on

a line with the depth of the center, or of any other platoon that may be ordered.

CHANGE OF FRONT FOR RECEIVING THE
ENEMY IN *E*.

HERE I suppose the batallion menaced and ready to be attacked by the enemy's troops *E*, which obliges it to change its front in order to oppose them on a parallel line.

You must observe that on this occasion the angle of conversion is about 160 degrees; the half of which is 80. The batallion is to divide in platoons on the left, and each platoon is to describe 70 degrees. (*Pl. 9. Fig. 4.*) Those platoons are to move immediately after, following the pointed lines, which represent the lines of their arches of conversion, until they find themselves opposite and behind their new post.

M

IF the enemy's troops are too near, and that there is neither sufficient time or safety for undertaking the manœuvre, (*Pl. 9. Fig. 5.*) you must retire from them by changing your front. A change of front, therefore, of 45 degrees only, must be made on the right, by which means the batallion will be in order of battle on a line parallel to the enemy's front.

IT may be objected, perhaps, that it is the rear rank that is opposed to the enemy, and consequently that the manœuvre is contrary to rule. I shall answer this in the following article, where the case is more striking.

IF the enemies are at a sufficient distance to allow time, another method may be pursued by which the batallion will be in order of battle on their right flank; (*Pl. 10. Fig. 1.*) this movement will oblige them in turn to perform some manœuvre, of which advantage

may be taken for attacking them with success. This movement may be made by a half turn to the right, then a greater or less change of front backwards, and on the right now become the left: a view of the plate will sufficiently explain the manœuvre.

CHANGE OF FRONT FOR RECEIVING THE
ENEMY IN F.

IF the enemy's troops appear behind the batallion, it must then only make a half turn to the right, oblige the closers of the files to get into their ranks, or cross the batallion (*Pl. 10. Fig. 2.*) and make the commanders of the platoons pass, at same time to the last rank, now become the first. This is what is actually practised in our exercise at this day, and should be sufficient without harassing the men, and making them run to right and left in search of posts of honour, in order to oppose the first rank to the ene-

my. The rear rank is not much inferior to the first, and though it were, the difference would not compensate for the trouble of so many manœuvres, especially at a time when there is occasion for the utmost exertion of strength and power. Besides, the first rank is not lost or useless for becoming the last; it is even a question, whether it is not as advantageously posted as it can be; it is a check upon those who are in the two other ranks, who dare not think of turning their backs; men of courage and vigour can always support and protect the weak and cowardly; whereas the latter never yield any protection to the former. If the first are by far the best troops, and that, nevertheless, they are forced to give way, the two hinder ranks, that are so much inferior, will never reinstate the battle; but the choice troops, being in the last rank, may succeed their leaders of files and wrest the victory out of the hands of an enemy that is already weakened.

I hope those remarks will be thought a satisfactory answer to the objection mentioned in the last article, and which is common to this.

CHANGE OF FRONT FOR RECEIVING THE
ENEMY IN G.

THIS term, which admits of a more general sense, has hitherto described an evolution that only supplied the place of quarter conversions: it comprehends, nevertheless, both in the literal sense, and in that which I use it, all the variations, however considerable, that are executed by right, oblique or circular lines.

I have already shewn, that changes of front, by circular motions, were slower; because the platoons described circular arches. All those I have hitherto given, have been made by passing over the lines of the arches, which is the shortest way

possible; I shall now give one that is to be performed after a different manner; because the time and space are less, as there is neither arch to describe, or line to pass.

SUPPOSE the enemy appears in array as we see on the plate, and that the battallion XY (*Pl. 10. Fig. 3.*) is reduced to the necessity of drawing up in order of battle, or rather of altering its front, and moving backwards on the left; this left can have no shorter road to the point O, than the line XO, and the right none more expeditious than the line YX. If the battallion makes a motion to the left, and afterwards quarter conversions in files on the ground of the file on the left, each man will reach his new post by the shortest road possible. But in this order of marching the men are obliged to shorten their steps; that is to say, they are to march the flank pace, so that the time is not in proportion to the space or extent of ground.

IN order, therefore, to unite the *time*, *space* and *mutual protection*, which in this instance would be but indifferently followed, the platoons shall make quarter conversions on the flank backwards, and continue their march in this order. The first platoon of the right shall immediately face about to the right, (*Pl. 10. Fig. 3.*) after it has finished filing off, and march right forward, without stopping any more till it reaches its new post. The second afterwards shall turn to the right, as soon as the eighth arrives on its flank, with which it is to march in array till on a level with the depth of the third, which is to perform the same manœuvre with them; and so of the others to the ninth. By this means the time and space are as short as possible; and with respect to mutual protections, we see this body first ranging in a marching column, and moving on its left side; the depth of the column diminishes gradually as it advances on the left; because the platoons

that are at the tail or rear are drawing up in order of battle. Those are protected by the column as long as it preserves its form, (*Pl. 10. Fig. 4.*) and it is itself protected by the platoons, whose front increases and advances according as the depth and force of the column decrease and diminish.

IF a body of the enemy should appear against the batallion while they are beginning the manœuvre, and that this body attempted to attack them, when the manœuvre was performed, they would still be in a condition to meet them. They have the same resources to employ, the same springs to set in motion as in the other changes of front that I have explained. The companies that are in array may form a column on the right, and those who are in a column may range in array on the right likewise. Both may execute the movement by quarter conversions; (*Pl. 10. Fig. 5.*) so that, as it requires no complex mo-

tion, there is no danger in the undertaking.

IF, instead of ranging in array behind on the left, you would chuse to do it removing from the enemy, it is only making a half turn to the right, afterwards a change of front on the right become the left, and you will then be on a parallel line.

OBSERVATIONS

ON CERTAIN EVOLUTIONS OF THE
ANCIENTS.

HITHERTO we have only examined the properties of figures or arrangements that are quadrangular rectangles, the principles of whose powers and movements we have endeavoured to fix. We have now the triangular wedge to consider, and to find out, if possible, its good or bad qualities and effects; in order to know when it may be employed, and when it ought to be rejected. This arrangement has a number of partisans, it likewise has many to condemn it. We must try to reconcile both, by a scrupulous analysis, without embracing either side, but as truth appears and offers demonstration.

THE ancients tell us that the infantry imitated the cavalry in this method of

engaging; this origin obliges us to go somewhat higher, and to begin with the lozenge which preceded the wedge of the cavalry.

OF THE LOZENGE.

A Lozenge in Geometry is a figure composed of four sides and four angles: of the four angles two are always obtuse and two acute. (*Pl. 11. Fig. 2.*) The angles that are alike are always opposed one to the other, and always in the same number of degrees. Such is the form of the space occupied by a body of cavalry, ranged in the lozenge order.

“ THERE are, says Elie, many ways
 “ of ranging squadrons in a lozenge:
 “ in the first, they have ranks and files;
 “ in the second, neither; in the third,
 “ they have files, but no ranks; lastly,
 “ in the fourth, they have ranks alone
 “ without files.”

WE shall begin, as this author, with the arranging and analysing that which had ranks and files.

“ WE begin, continues he, with
“ ranging the middle rank, which is
“ always the greatest, and which must
“ be composed of an odd number of
“ horse; of eleven, thirteen, or fifteen,
“ &c. Before and behind this rank,
“ another is formed, which must have
“ two less; the rank which next pre-
“ cedes, as well as that which follows it,
“ must have thirteen, and those that are
“ successively added behind and before,
“ diminishing in the same proportion,
“ are to be of eleven, nine, &c. to the
“ first and last in which there will be
“ but one to form the angles of the head
“ and tail; and this squadron shall con-
“ tain one hundred and thirteen horse or
“ dragoons.”

A Body of cavalry, ranged after this manner, may march in the order given

to it, the moment it is formed; but should it be necessary to move to the right or left, it can make no such motion without a general hurry and revolution thro' all its parts, which is diametrically opposite to the principles of the art. Before it began to move, it would be indispensibly obliged to do as follows. The horses, placed in ranks, side by side, and their files closed, on account of their oblong form, cannot turn either to right or left, without opening their files. In order, therefore, to effect this change, the horse must move sideways at right and left, (*Pl. 11. Fig. 3.*) on the pointed lines *ac, ac, ac, &c.* to open their files; and each horse must afterwards turn upon himself to make head on the side proposed: this being done, the ranks, become files, must close on the center by other side paces, before they can march in the new order.

A little attention to all those movements will shew us, (*Pl. 11. Fig. 5.*)

that the *lozenge* becomes a *square* by the ground, and afterwards becomes a *lozenge* again in a contrary sense to its first arrangement; that is to say, the angles that were at first obtuse become acute, and those that were acute become obtuse*.

THE danger incident to so many complications and delays is more than sufficient to make us reject such an arrangement.

It will be said, perhaps, that the figure I give is not conformable to that found in Elie's Tactics. In answer to the objection, I have only to observe, that this is formed on the most generally received proportion between the length

* I do not suppose that in this order the cavalry was ranged in open files, giving each horse a square space; for by that means it would lose one of its greatest advantages, which consists in the impossibility of the horse's turning to run away. Besides, if this reflection is not sufficient to prove they were ranged in close files, our author himself will prove it when he comes to speak of the *lozenge*, that had neither ranks or files.

of the horse and his breadth or diameter, which is almost as three to one; so that if the center file was equal in number to the greatest rank, it must have had thrice the length of this rank for its depth, which determines very clearly the dimensions of this arrangement.

BUT besides the hurry and confusion we have just now remarked, let us examine what is the situation of such an arrangement at the very moment of the shock which is considered as its most favourable opportunity.

IN the time of the Greeks and Romans all affairs of war were decided sword in hand. Battles were then more bloody than in our days, though the soldiers went to war better provided against dangers than they do at present, the heavy armed troops advanced on both sides and closed, as soon as the light troops had retired through the vacant spaces. The leaders of the files, as soon

as they closed, fought each at the head of his file and the killed and wounded were continually replaced by the second ranks, and those by the third, &c. This manner of fighting rendered the engagements long and obstinate. What is called shock was not, therefore, so decisive as it may be in those days, when there is not so much use made of the sword; for a shock, considered in itself, is the affair of a single moment, and every disorder occasioned by this movement might be repaired by the troops, at least, it will ever remain a certain fact, that troops, trained to engage on such principles, are formed to seize the critical circumstances that may offer in the course of an engagement, and the lozenge would furnish many without a possibility of avoiding it. Let us examine this.

THE lozenge only struck with the point A, and shock but what was opposed to it, that is, a single file. Its celerity is immediately destroyed and conse-

quently its quantity of motion. But it is not the same with the adjacent files on the right and left, *b, b, b, b*, whose leaders are still at a distance; because they are not joined together as the parts of a piece of carpenter's work, and none of them was sensible of resistance at the same time with the first. Their respective celerity cannot therefore cease but according as each file perceives that its neighbour file has stopped; so that they stop only in succession one after the other, from the center file to those of the two extremities.

THE lozenge, therefore, could only preserve its order until the moment there was most occasion for making use of it, that is, at the instant of the shock.

BUT, to allow it the fairest play possible, let us suppose that all the men have the quickest and most discerning eye, and that the horses are the best trained

that can be had, so that they all may stop at one time and with one motion; the horseman, at the head, will he not be surrounded by those of the enemy who spread on each side, if his comrades do not advance to prevent it? will not those, likewise, be in the same situation if the man at the extremity of the third rank does not advance and follow them, and so of the rest? In the first instance, the enemy, eager to take the horseman at the head in flank, afterwards the second rank, and then the third, would naturally form a *tenaille*; in the second case, the lozenge would become a triangle that engages at the base.

In whatever point of view we consider this arrangement, we can discover nothing but what is contrary to the principles of the art, nor suppose one circumstance where it can act with advantage.

OF THE LOZENGE THAT HAS NEITHER
RANKS OR FILES.

“THE March† places himself first,
 “ (Pl. II. Fig. 6.) two horses post
 “ themselves afterwards one on the right
 “ and the other on the left, having their
 “ horses heads, however, as we obser-
 “ ved before, no higher than on a level
 “ with the shoulders of his. The leader
 “ of the second rank places himself af-
 “ terwards behind the March, and on
 “ each side of the former are four horse
 “ disposed together in the same order
 “ with those preceding.”

THOSE who are curious to see the re-
 mainder of this relation will find it in Mr.
 Buffy's translation of this author, (page
 94.) I only repeat what is necessary for
 me to prove, that the horse were ranged

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† The commander of the troops. See *Elien*.

in close files in the lozenge which I have been analysing.

ELIEN begins the chapter in this manner, "It is said in favour of the lozenge, without ranks or files, that in it the evolutions and all the particular changes of position were made with greater ease and regularity, the horseman having nothing to incommode him before, behind, or on either side."

THIS passage evidently proves that in the first lozenge, the trooper, or dragoon, had obstacles on his right, left, behind and before, that prevented his turning with ease, and those obstacles could be nothing but the proximity of the files contiguous.

I look upon it, indeed, to be preferable to the first on account of this advantage, and besides it more nearly resembled a square than the other, which appears to me to be too slender. However,

those trifling advantages do not hinder its being very faulty, absurd and entirely inadmissible.

OF THE WEDGE OF CAVALRY.

THIS figure was formed on the same principles and movements as the lozenge (*Pl. 12. Fig. 1.*) as far as the greatest rank of the latter, which served as a base to the triangular wedge. It was therefore as the half of a lozenge cut and divided at its obtuse angles.

THIS arrangement is still worse than that from whence it is derived. Besides all its defects and faults, it has the disadvantage, moreover, that it cannot become a wedge, or act as such, after making a motion to right or left; because it would have neither the necessary progression or just proportions: this will be more clearly demonstrated in the following article where we shall examine the wedge of the infantry.

OF THE TRIANGULAR WEDGE OF INFANTRY.

SOME people pretend, that there were two sorts of triangular wedges in use among the ancients. The first was full and formed after the same manner as the lozenge, and the wedge of the cavalry. The second was open at the base and ranged differently from that of the first.

OF THE TRIANGULAR WEDGE,
WITH A FULL CENTER.

THE Greek soldier occupied at all times a square space greater or less in proportion to the requisite order, either at a review, advancing to the enemy, or receiving them. This wedge was formed according to the arithmetical progression $\div 1, 3, 5, 7, \&c.$

REMARKS ON THIS ARRANGEMENT.

WE must observe 1st, that this method of placing men, who in the cavalry would produce a lozenge, the half of which would be a wedge with an acute angle, (*Pl. 11. Fig. 3.*) would in the infantry produce a square, one half of which taken diagonally, would be a wedge with a right angle or a triangle rectangle. In this it is a succession of square spaces, (*Pl. 11. Fig. 2.*) placed in a progression that would produce a square of a given number; in the other it is a series of oblong spaces, whose length are thrice their breadth, and placed according to the same progression.

It follows from this observation that the Angle A, which I call incisive angle (because it is that which is to enter and break through the enemy's line) is a right angle, and that the two others B

and C, which are equal, are each of forty-five degrees †.

2dly, THAT the rank B C, which forms the base of this wedge, would occupy every way the same space that a square arrangement, and that the inequalities of depth in the files has no influence on the extent of front of the ground of the wedge.

3dly, THAT all the files are parallel to one another, (*Pl. 12. Fig. 2.*) and occupy each the space proper for them, and are to march right before in the direction of the pointed lines *x, x, x, &c.*

It follows from those two last observations, that the weight of the collateral files cannot be directed on the point of the wedge; that is, on the incisive angle A, or give it greater force or mo-

† Lines drawn along the three sides of this arrangement would give this triangle the proportions mentioned exactly.

tion in the shock, than what it derives from the file that terminates it.

IF a body of troops ranged after this manner should advance with a brisk and hasty motion, to give a shock to an enemy, that receives them in a firm position, it would be in the same situation as the lozenge, with respect to the general revolution of the men at the extremities of the hinder ranks.

BUT we shall suppose, in order to obviate those inconveniencies, that the men are sufficiently masters of their motions to preserve their ranks in such circumstances; this firmness or effect of discipline cannot prevent the enemy from avoiding their shock, and surrounding them, or, at least, from attacking them on one of their flanks, or on one of the angles of the base.

IF this wedge be under the necessity of facing about to right or left, to move

on either of its angles, as on the angle C; for example, by this movement it becomes a mis-shapen, irregular figure, without any proportion. The above, B C, become a file, is twice as long as the side A C, which forms the angle with it. The side A B is oblique to the march proposed and the progression of this new wedge is that of $\div 1, 2, 3, 4, \&c.$ which would produce an absurd figure incapable of any execution.

If it was necessary to make a defence on the side A B, or to march to an enemy on this side become a rank, the direction could only be taken by a half turn to the left. The wedge by this movement becomes as ridiculous as the last, on account of the little proportion of its sides, and the weakness of that which is to open the engagement. This new rank is composed of the same number of men as that which forms the capital file A D, or the half of the base B C; but the line on which this rank is placed is long-

er than either of the two sides, as it is the hypotenuse of a triangle rectangle, formed by those three lines. Then the number of men ranged on those lines being equal to one another, and the spaces unequal, if those who are on the shortest lines have the proper extent, those who are on the longest have more ground than is necessary, and the arrangement is wrong. Add to this that the soldiers, by a half turn to the right, take a direction oblique to their ranks and files, and lose the facility of marching in close and good order,

THIS arrangement, therefore, is not proper for marching in all senses, or for attacking or defending on every side, as some very celebrated writers have imagined. It can only march by its incisive angle, or the opposite base; and with regard to the violence of its shock, we think we have clearly demonstrated, that it is purely chimerical, and could

never have resulted either from its form or action.

It would, indeed, be superfluous to enter into other particulars, to prove that the triangular wedge could not undertake a circular movement, or any other for changing its front or incisive angle, in order to be able to take another road and move to a point different from that before it, that is out of its original direction.

OF THE OPEN WEDGE.

THIS species of wedge was formed two different ways, with the Greeks and Romans. Mr *Bouchaud de Buffy*, who takes them, one from *Elien*, whom he translates, the other from *Vegecius*, gives us a third, which appears to be of his own invention, and is very much superior to the other two. Let us begin, however, with that of the Grecian author, which *Epaminondas*, according to

him, employed so successfully at the battle of Leuctre.

“ It was by means of part of his infantry drawn up close together after this manner (in form of a wedge) that at Leuctre, Epaminondas, the Theban general, overthrew the Lacedæmonians, whose army was much superior to that which he commanded. To form this wedge, the two divisions of a double phalanx amphistome, are to unite together at the head, being separate or open at the tail or rear; which gives them a near resemblance of the Greek letter Λ .”

THE figure resulting from this manœuvre cannot resemble the Greek *lambda* Λ or our V inverted; because this letter is formed only by two lines terminating in a point or acute angle, (*Pl. 12. Fig. 3.*) while this arrangement exhibits a greater number of sides, and that its an-

gle is of 90 degrees, that is to say, a right angle.

NOR could it resemble a triangle; because the triangle never has but three sides and three angles, and that this wedge would have six or eight, with as many saliant angles of divers quantities of degrees, and placed in various directions. There is then no analogy between this arrangement and a triangle, to give it the name of one; nor has it any resemblance to our V inverted Λ , as we have shewn already: and, perhaps, we shall hereafter see that it has still less to the mechanic wedge.

WITH regard to the defects of this wedge, they are nearly the same with those of the full triangle. The same difficulties occur relative to the marches or motions on the angles and sides. This cannot move on the side opposed to the incisive angle as the other; but in return, if this angle meets with resistance,

and that the other files continue their movement, it finds itself in its primitive order; that is, in the order of a phalanx, and in a condition to engage the enemy's troops that make the resistance.

THIS advantage does not, however, belong to the wedge of *Elien* or *Vegecius*; but when it is formed on Mr. Bouchaud's plan. (*Pl. 12. Fig. 4.*)

THE double phalanx amphistome, was the two halves of a phalanx A. B, that separated by two quarter conversions; the one turned to the right, the other to the left. The two divisions found themselves divided by those movements, and their chiefs, or leaders of the files, separated from each other by a distance equal to the length of the whole front of the phalanx. But this should not suffice; they should have removed until this distance was between the clofers of the files. The two heads ap-

proached each other afterwards to form the wedge, and when the closers of the files YY (*Pl. 12. Fig. 5.*) mutually touched each other, all the files made a half quarter conversion forward, each on the particular closer of its own file, and completed the wedge.

It was evidently necessary that the tails MM of those divisions should keep separate from each other, and preserve the distance directed above; for it would have been impossible to complete the manœuvre, and take the form required, if they did not preserve it. The author does not say this was observed; we may even conclude, from what he says of it, that the rear or tails followed the heads in their oblique march towards one another, which made them necessarily approach each other more or less, according to the obliqueness of their directions. This is an omission no way favourable to the system.

VEGECIUS's method is more clearly explained than this; but is not, therefore, less faulty or defective. The two wings of the phalanx did not draw up in an amphistome; but made a half turn to the right, (*Pl.* 12. *Fig.* 6.) then a half quarter conversion, each turning towards the other, and observing that each rank turns on itself, and not on a common pivot. By this evolution the points of the wings A B, become tails of the wedge M M, approached very near each other, the files lost ground, and consequently the men were too much crowded in their ranks to be able to continue long in the requisite order; we preserve the form required.

Mr. *Bouchaud* has succeeded in obviating certain inconveniencies by his method of forming the wedge.

“ THE same body of troops, being in
“ array, may likewise, says he, form

“ the wedge in marching forward, and
“ this manœuvre requires no preliminary
“ movement. The three divisions being
“ marked, as well as the three files of
“ the center which are to compose the
“ head of the wedge, the following or-
“ ders are given: *marked divisions pre-*
“ *pare to form the wedge in marching:*
“ *march* †. At the first notice, the
“ files and ranks close suddenly; at the
“ second, the three files of the center,
“ which will be the two first left files of
“ the division on the right, and the first
“ right file in the division on the left,
“ march right forward; at their second
“ pace, the first file, that is contiguous
“ to them on the right, and that which
“ is equally contiguous on the left,
“ move in their turn, so as to have their
“ chiefs or leaders on a line, and in a

† *Fig. 3. of Pl. 12. exhibiting a perfect view of this manœuvre, it was useless to repeat it; we have only to suppose the phalanx ranged on the pointed lines A B.*

“ rank, as it were, with the second sol-
 “ diers of the three files of the center;
 “ at the second pace of the files, who
 “ have made the second motion, the files
 “ who touch them march immediately
 “ likewise, and the same manœuvre is
 “ to continue successively, each head of
 “ a file taking notice not to move until
 “ the moment he finds himself on a line
 “ with the second man of the file con-
 “ tiguous, &c.”

THIS method is beyond dispute the
 most simple, short, and secure that can
 be devised. The men occupy necessary
 and proper spaces, and if the enemy's
 resistance should stop their head, the rest
 of the files, continuing their movements,
 would all arrive on the same front to en-
 gage together, that is, they would be in
 their primitive order of a phalanx.

THOSE advantages do not, however,
 induce me to think the arrangement ei-

ther good or practicable against infantry, but I am apt to believe that small wedges, such as Mr. Bouchaud himself proposes, would be of service against cavalry. They would be like so many arrows on which the horse would run themselves, in attempting to break them. This is the only circumstance, that I can see, in which any advantage could be derived from it; for it does not at all seem calculated for an attack of any kind whatever, though, in the sense of many, its principal virtue and efficacy consist in attacking. Let us now return to the wedge of Epaminondas at Leuctres.

AMONG the number of battles gained, according to some, by triangular wedges, and by columns, according to others, those of Leuctres and Mantinea are the most proper to be analysed, as being the most simple, the least complex and, in a word, the masterpieces of one of the most celebrated, and at same time most experienced commander, that has hi-

ther to appeared. It is somewhat strange, though common enough, to see different parties make use of the same circumstances to prove things that are diametrically opposite to each other; and unhappily this is but too frequent in all the systems of different professions, as well as in those of the military. We shall endeavour to reconcile the matter, and trace the form that Epaminondas gave the wedge in question, by making use of circumstances with respect to which all parties are of one opinion.

ALL agree, or suppose, that the wedge contained three thousand men, and that it was drawn up fifty deep; those two points being granted will light us perhaps to a discovery of all the rest.

IT is demonstrated, that as often as we know the number of the terms of an arithmetical progression, the first term and the common additive difference, we

may, by a sure and infallible calculation, find the last term, and afterwards the sum total, of all the terms of the progression put together.

In a triangle of men we can only take the number two for an additive term, as a unit would be absurd, and only produce a long and weak stripe or line, and the number four would give an angle much greater than a right angle; which would deprive this arrangement of all affinity with the mechanic wedge, we must, therefore, proceed to the solution of this problem by reckoning two for the additive additional term.

The first term of the wedge of Epaminondas, according to Elien, was three; and as the additive can only be two, in multiplying two by forty-nine, the number of the terms of the progression all but one, and adding thereto three, or the first term, we shall have the greatest rank. The product, which is a hundred

and one, must afterwards be added to the first term three; and the two sums, one hundred and four, multiplied by twenty-five, the half of the number of the terms give two thousand and six hundred, for the number contained in the triangular wedge proposed.

THAT which Epaminondas made use of was not then a full triangular wedge, since the number he employed was greater by 400 men. Elien tells us, that this general formed it of a double phalanx amphistome. We have already analysed this arrangement, and demonstrated that the fronts of the divisions of this phalanx, drawn up in a wedge, could not be considered as being become files; because their weight and order do not tend to the point; but in parallel directions, and that the depth of the files remains always the same after as before the manœuvre.

THE double phalanx amphistome, of which Epaminondas formed the wedge, contained 3000 men, who were ranged, in Mr. Bouchaud's opinion, one hundred in front and thirty deep. But we have just now seen that the depth of the files was not augmented by this manœuvre; from whence it follows, that, if Epaminondas engaged in this order, the author should have said that the wedge was but thirty deep. We are of opinion then we may conclude, that this famous victory was not obtained by a triangular wedge of either kind.

THE Chevalier Folard † has been guilty of an error of calculation, in his discourse on the column, we shall quote the passage: “Xenophon, speaking of
“the two orders of battle at Leuctres,
“says, that *the files of the Lacedemonians*
“*were only the third of a detachment,*

† See Folard's Polybius, vol. 1, *dissertation on the column.*

“ which made them only twelve deep;
 “ whereas, says he, those of the Thebans
 “ were fifty, the better to break the pha-
 “ lanx where the king commanded, on the
 “ defeat of which success depended. I
 “ would now fain know, says the Che-
 “ valier, whether by Epaminondas’s
 “ three thousand men, I am to con-
 “ ceive a triangle; such a thing would
 “ be absurd; for it is plain, by the pas-
 “ sage just quoted, that the files were
 “ composed of fifty, and consequently
 “ the ranks of thirty. This therefore
 “ is a perfect column, &c.”

THE error in the calculation is here quite manifest, for 3000, divided by fifty, give sixty; so that the body of 3000 was sixty in front and thirty in depth, which is evidently a phalanx. But agreeable to the definition given before of the column and of a phalanx of a certain extent, this body, by a simple motion to the right, became a column, and might act as such. It is in this sense

Folard disposes of it in his plan of the battle of Mantinea; this is the most probable conjecture I have yet met with on the matter: for the half quarter wheel which the army made, gave the troops the position necessary for acting in this sense much better than the other. I can not quit the subject without examining why the triangle has an analogy to the mechanic wedge rather than to an oblong square.

THIS instrument is known to every one; it is composed of five surfaces, two of which are triangular, two long squared, and the fifth arbitrary. The two oblong surfaces, by their inclination to each other, form the point that infinuates itself into the wood, &c. that is to be split, as well as the sides or triangular surfaces, if the triangle, as it is driven, lengthens the slit or opening. It is the square surfaces that first infinuated themselves into the body to be cleft, and what are called triangular surfaces are

only what fill the space that separates the two quadrangular sides. After this reflection it appears, that the column has, at least, as just a claim as the triangle to the term or word wedge: we may even say, with confidence, it has a much better; for a triangle of men ranged according to the same proportion as the triangle of the mechanic wedge, would be of very little force, and a mechanic wedge, of which the incisive angle was as great as that of a triangle of men, would be too large to enter those bodies we should want to cleave or split.

To conclude the chapter, we shall only observe, that, all terms metaphorically applied, sooner or later produce doubts and uncertainty. Neither a column or triangle of men should have ever been denominated by the word wedge; for a line of troops is not formed to be split as a piece of timber, it may be opened, broken through, or divided into as many parts as possible.

OF THE TÊTE DE PORC. †

WE now offer another arrangement of the triangular kind; those we have been examining were composed of ranks greater one than the other; in a regular progression from the incisive angle to the base. The *Tête de porc* was formed of small bodies ranged in lines in the same sense, and in the same progression as the ranks in the preceding wedges; that is to say, a small body (probably square) was placed at the head, (*see the full triangle we mentioned before*) another of the same size was posted behind it, having two others, one on its right the other on its left, both extending the full length of their front beyond the wings of the first. Behind those three, five others were ranged in the same order and so on successively until all were placed.

† *Tête de porc*, literally means, a Hog's head.

THIS arrangement is equal to the former, with regard to defects; as to advantages it has but one only, which will never be of weight enough to gain it any degree of reputation; it is this, that, being composed of small bodies, each having its leader or commander, all the different parts are more or less capable of defence, should they be attacked at the time they are forming or dividing, and if the enemy attempted to form the *Tenaille*, they might detach some of those small bodies to interrupt their motions, or to attack them in flank.

AFTER what has been said of the wedge, a more particular analysis of the *Tête de porc* would be unnecessary, besides, no person, that I could learn, has a favourable opinion of it, nor do I think it ever will find partisans to defend it.

OF THE TENAILLE.†

A Phalanx, attacked by a lozenge or triangular wedge, (*Pl. 11.*) bent its right and left forward by a half quarter conversion, each wing, on their common center; and when they found themselves opposite the sides of the enemy's arrangement, they each marched on their own side right before them; by which means they both inclosed and attacked the enemy together, at the same time, while the head was engaged and at blows with the center of the phalanx that had kept its ground. Such is the description authors have left us of the design and effects of this manœuvre.

THIS evolution must have been serviceable in the times of the ancients. It could not remain long unknown; for their manner of engaging should natu-

† *Tenaille*, literally means *shears*.

rally point it out without any other instruction. Men of experience and abilities in the art of war, no doubt, improved it afterwards, according to the principles of the art, as it was known in their days.

THE discovery of the *Tenaille*, should, I think, have suppressed every notion of employing the triangular wedge. The head of the latter attacked in front by those who kept their ground, and taken in flank by the two sides of the *Tenaille*, could not make a moment's resistance, and its defeat necessarily brought on that of the whole body. The *Tenaille* had not the same advantage over the column; this, as chevalier Folard observes, could alter the direction of its march and fall upon one of the wings, whether in motion or not, or detach the section of the tail or rear to take its wings in flank, while it was busy in making the quarter conversion. The column and *Tenaille* were formed for acting against each other,

and could only be victorious over one another by the superior abilities of their commander. I fancy, however, the column was always exposed to less danger than the *tenaille*; for the latter could not pursue the column without changing its order; whereas the column must destroy, and in a manner annihilate, the *tenaille*, in case it could once break it.

THIS manœuvre was excellent and conformable to a very wise maxim, which directs us to multiply our strength and efforts as much as possible against one point, we sometimes make use of it in war without being sensible of it; this does not hinder the manœuvre from being well performed; for the nature of ground not being level, like a sheet of paper, the commander in ranging his troops, according to the advantages of the situation, does not form a perfect *tenaille*, such as may be seen on the plate, but one of an irregular kind which produces the

same effects; and this is what should be fought on all occasions.

OF THE ROUND, OR CIRCLE.

WE have not the least room to doubt that the Romans made use of the circle. Cæsar is too respectable an evidence to have his testimony disputed, when he gives an account of any action. Sabinus and Cotta furnished him with the occasion of mentioning this method of engaging, or rather of sacrificing the lives of men. However, the melancholy fate of those two generals does no honour to this arrangement: I do not even know that it has ever succeeded; but it seems to me that it never should. Every arrangement in which there would be no acting without disorder, must certainly be very faulty; it is like tying our arms where we are to be beaten; it is putting it in the enemy's power to undertake every thing against us with im-

punity: for if they are repulsed in their attack, and thrown into disorder, they have time to recover, before we are in a condition to take advantage thereof. In short, we are exposed to be beaten and broken at every attack, without the least hopes of victory, while the enemies are continually renewing their efforts, and multiplying their powers against a body harraßed and weakened, that has no supply to repair its losses.

We mentioned the defects of the circular batallion, in speaking of the mixture of cavalry and infantry, and of the mutual support proposed by Marshal Puysegur by means of this arrangement. We have now only to observe, that the round or circle is a polygon of as many sides as there are men in the first rank, that is, cannot march without changing its order; because the files are neither parallel or in a square with the side that begins the march. This reason, which appears so forcible against the round, is

the same against every polygon whatever: So that any figure that has more than four sides, that is, every figure, from the square to the round or circle, beginning with the pentagon, must necessarily have some sides that are oblique to each other, and consequently liable to all inconveniences. All that has been said of the round or circle should be sufficient, therefore, to prepossess us against polygons, which no care or attention can ever make serviceable. The absurdity of triangular arrangements having been, likewise, demonstrated, we should rest persuaded that quadrangular figures and rectangles alone are those we should endeavour to bring to perfection. Indeed, no others are, it is true, in use; but as some revolution might happen to bring them into vogue again, either in this or some future age, it was not amiss to explain them. Besides, it is of advantage to know how to form a judgement ourselves, as we often meet with things new in our

way. In time of war we have no leisure to consult authors, whose precepts are not always to be received as articles of faith, and who cannot, moreover, foresee every event.

GENIUS, experience and a great share of judgement are necessary to distinguish the occasions on which we are to submit our opinion, from those where we are to follow our own sentiments without deliberation. No person should ever take the command of troops, in time of war, if he has not sufficient capacity to act properly on an occasion without advice, or if he follows too hastily, or is too much attached to his own notions; it were to be wished that all those, who are so sollicitous and eager for preferment in the army, conceived all the importance of the affairs which they are so ready to take the direction and charge of. They would certainly be more modest in their requests, did they but feel part of

the sorrow and remorse which torture the humane and good-natured man through life, after having, by ignorance or neglect, occasioned any of those melancholy disasters that constantly happen in war. But, alas! many are too ignorant to be sensible of it; they only accuse fortune and think of taking their chance again.

I should have quoted Mr. Joli de Maiseroi, in analysing the wedge, if his work † had reached me in time, though my intention was to avoid quotations as much as possible. All that I have had leisure to peruse hitherto corresponds very well with the favourable idea given me of it by Mr. de Montcarville, who first made it known to me. This Gentleman is the first, I believe, who has given the true method of stating the real form of the wedge, of demonstrating

P 3

† A Theoretical and Practical Course of Tactics, &c. printed at Paris, and sold by *Merlin* Rue de la Harpe.

geometrically the absurdity of this arrangement. He did not think it an object deserving a serious examen, nor is it, indeed, to people of experience; but it is to those who are looking for instruction.

I am still in time to take notice of his half pike, nine feet long, with a musket barrel in the shaft, and the lock on the left side; it comes very seasonably to second my proposal for making troops engage sword in hand, the hand and right side forward. Without such a design, would not the lock be wrong placed? I am much pleased to find this sympathy of Ideas; because I had all the power of custom and prejudice to apprehend, of which I experienced so much with many of those I consulted, and who yielded only with reluctance, that I often was in doubt, whether I should not suppress my reflections. At present that we are two who set out on the same principle, without ever knowing or perhaps seeing each

other, a little attention and deliberation are due to us before judgement is irrevocably passed.

THE same author entirely disapproves the blending cavalry and infantry, and gives his reasons, which are unanswerable. The same causes are circumstantially related in my chapter on the subject, and of consequence the same judgement passed; that is to say, that what I call reciprocal protection is mentioned in his work under the title of mutual support, which not existing between both troops, made their junction liable to fatal consequences; but having afterwards established this protection, by means of small columns, I have thereby given some additional force to this system; in which, I imagined, I could discover the advantages that have been sought for in all ages. If they are really to be found in the effects of my method, they will not escape the penetration of so discern-

ing a judge as the gentleman mentioned, who has been looking for it in vain among the partizans of this manner of engaging.

THE new method of making quarter conversions, and which has been termed change of front, appears to Mr. Maize-roi to be attended with very critical circumstances. It is so, indeed, and this I demonstrated when I furnished the means of repairing such consequences, or preventing them. This manœuvre, as I have already observed, appeared without its principles, and without being thoroughly known.

I do not question but it has been found out by numbers; it is simple enough to occur to many at the same time. It is now 15 years since I imagined myself the sole possessor of it, except some friends, who certainly did not make it public, or ever make an experiment of it. I was surpris'd it could escape the notice of

those acquainted with Tactics, if it really had the properties, which I thought it had, and I saw it appear without any other surprise, than that of seeing it so lately put in practice. The manner of employing it seemed as hazardous to me as to Mr. Maizeroi; and I thought it incumbent on me to give the principles and all the ideas that occurred to me on the matter. Those are the principal articles I have read of the work, which I quote with great pleasure, as coming from an author of so much merit, and being analogous to my propositions on the same subject.

FINIS.



Fig. 1.

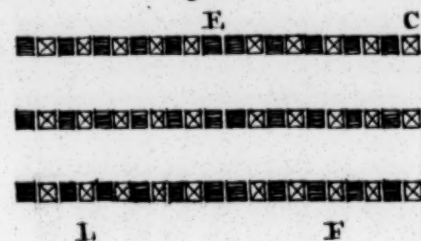
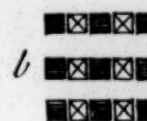
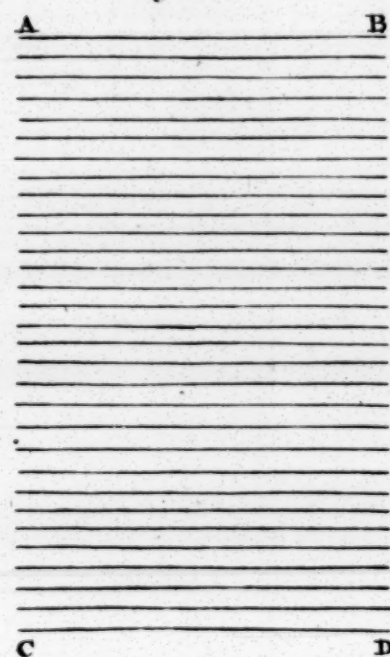


Fig. 5.



*Fig. 1. A Company of 63 Men the Opp
Fig. 2 . a . A Batallion three deep .
b . The Ranks open for dou
c . The Files doubled
Fig. 3. d . The Files closing, the mane
e . Disposition that may be ma*

Fig. 2.

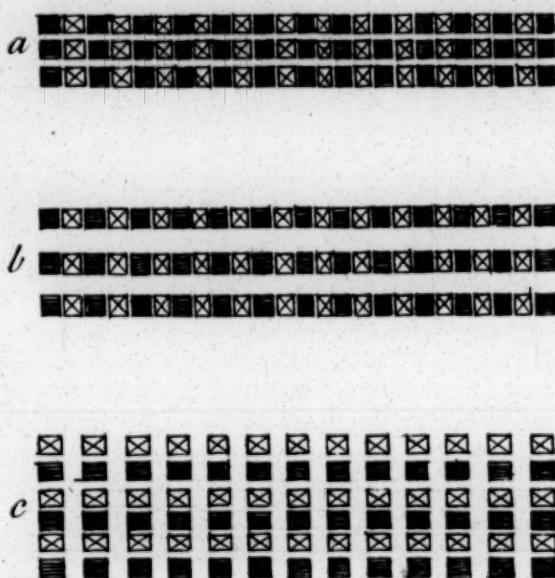


Fig. 3.

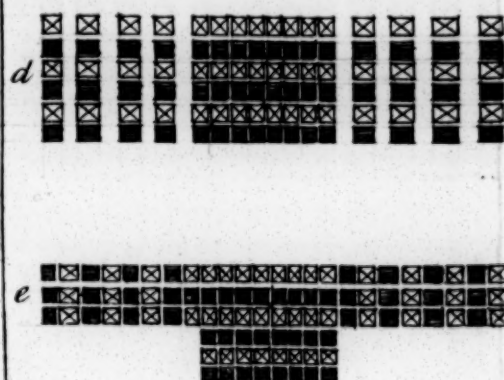


Fig. 4.

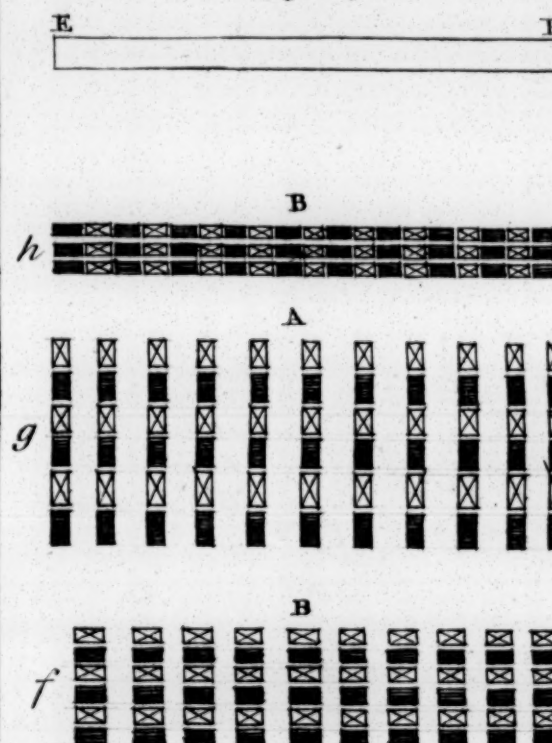


Fig. 6.



Fig. 7.



Bayly, Jr.

Men the Officers out of the Ranks.
three deep.

then for doubling the Files
led

ing, the manœuvre not completed

it may be made by Troops attacked, before-

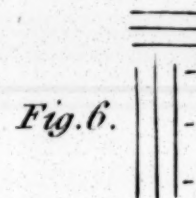
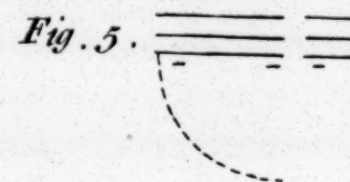
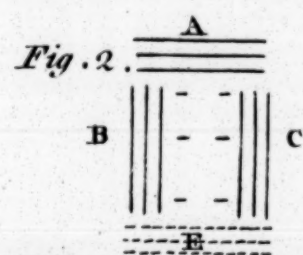
they have had time to complete the closure of their files six deep.

Fig. 4. f. The line B. going to cross the line A.

g. The Files of the line, A. doubled, presenting the flank to
the line, B.

Fig. 5. A Column.

Fig. 6. A Phalanx.



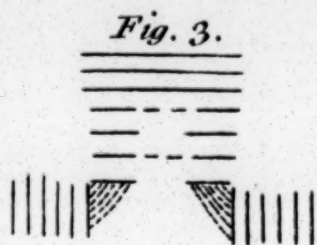
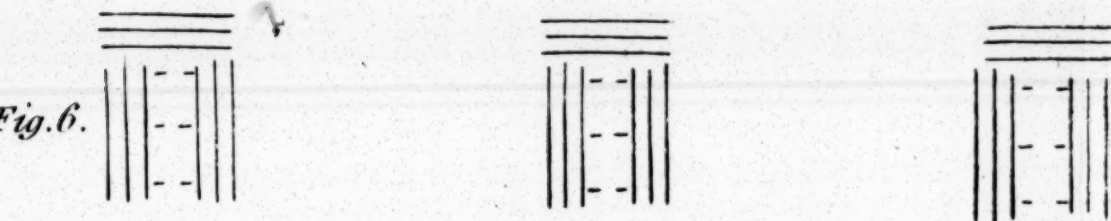
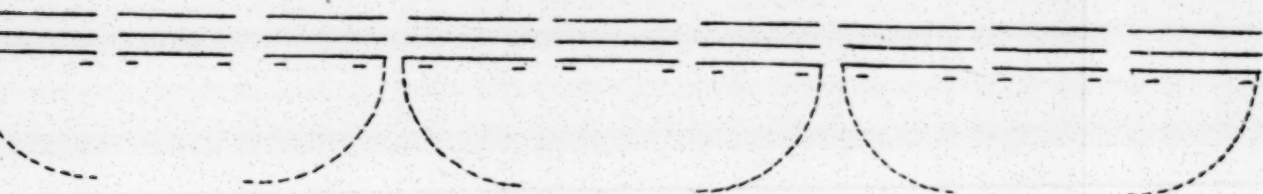
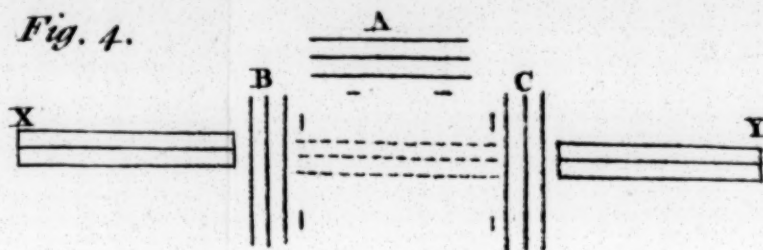


Fig. 4.



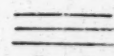
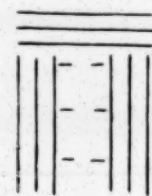
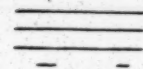
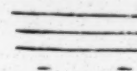


Fig. 1.

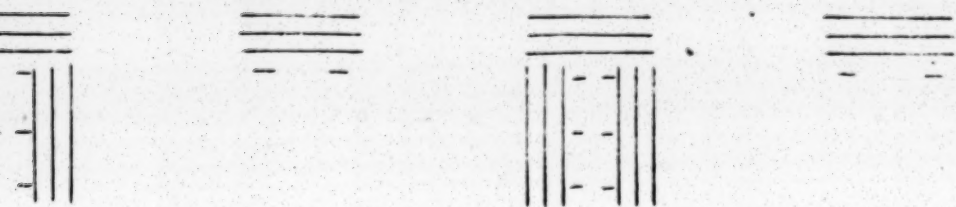


Fig. 2.

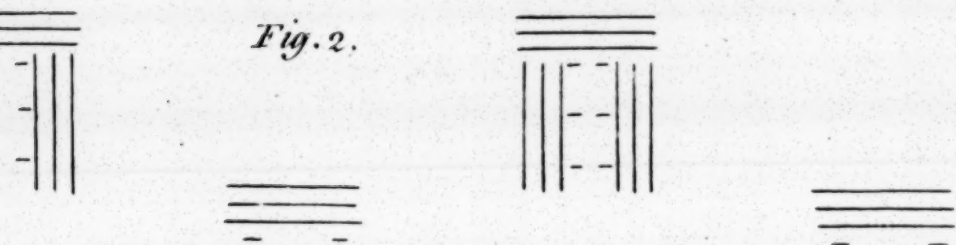


Fig. 3.



Fig. 4.

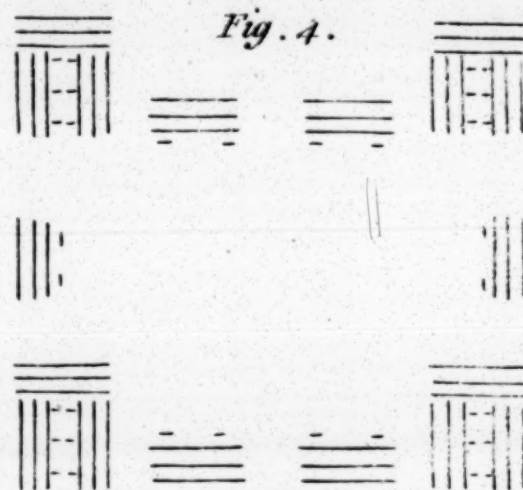
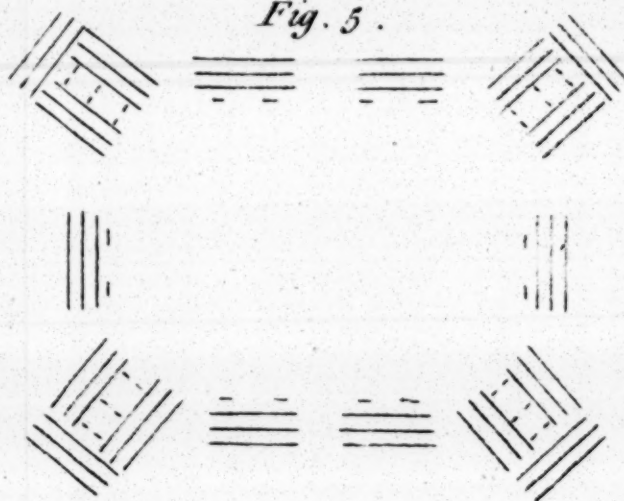
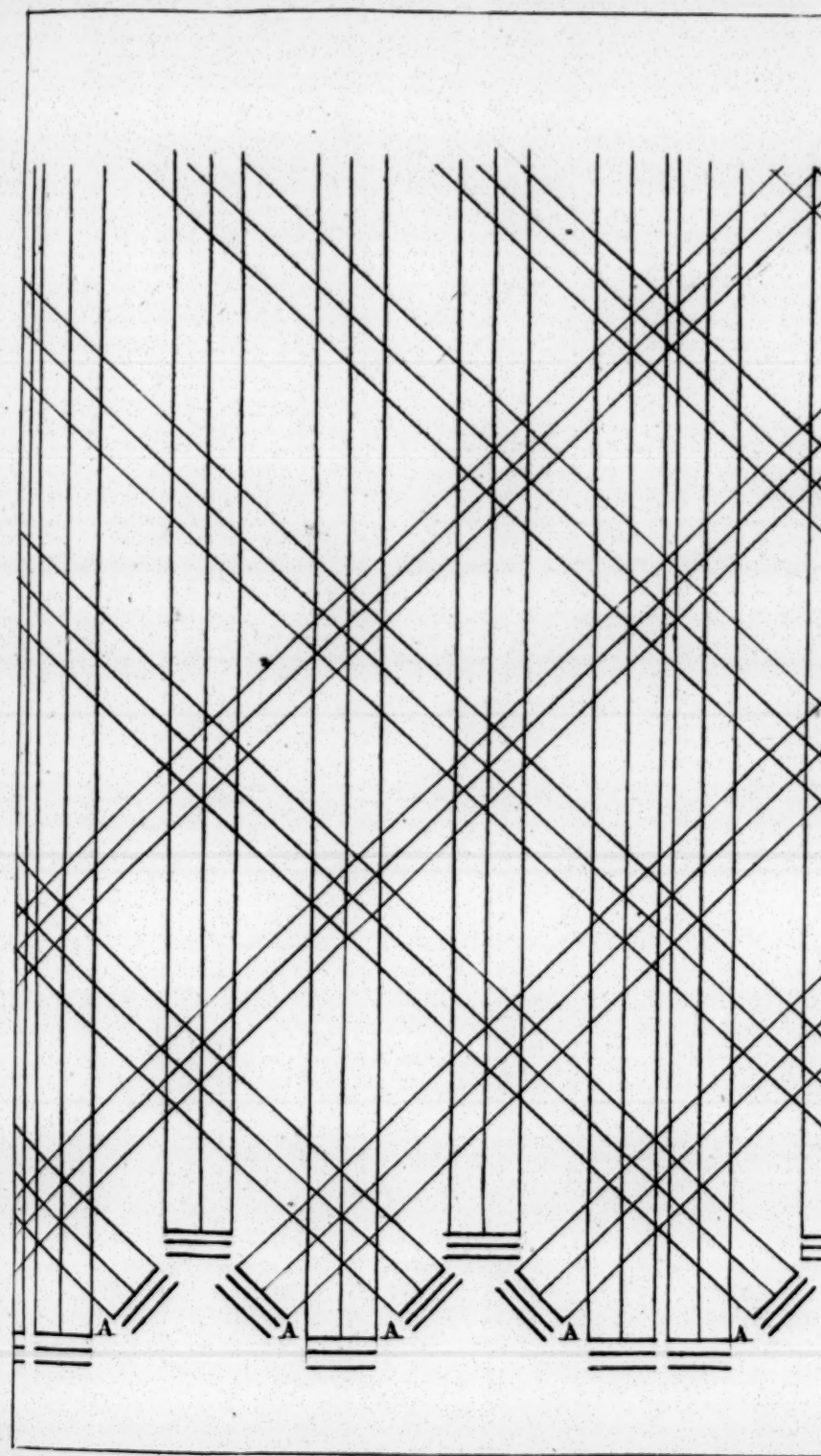
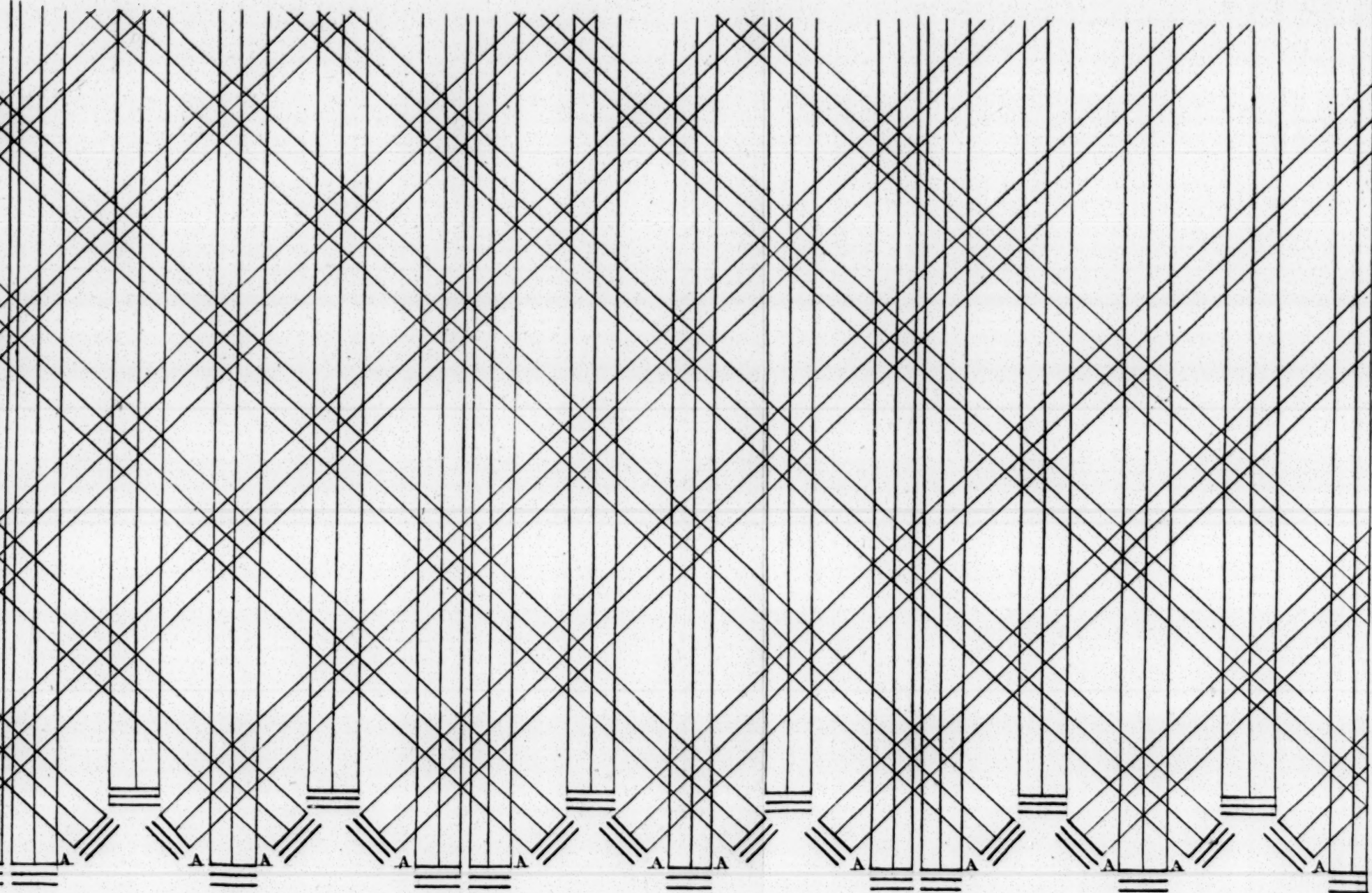


Fig. 5.





Pl. IV.



Bayly. Sc.

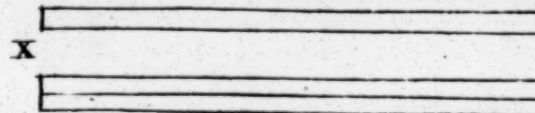


Fig. 1.

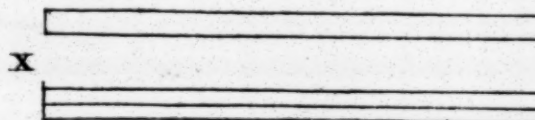
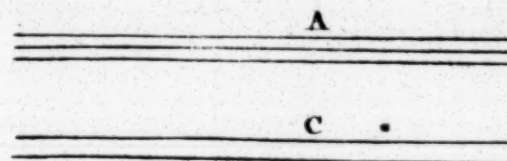


Fig. 2.

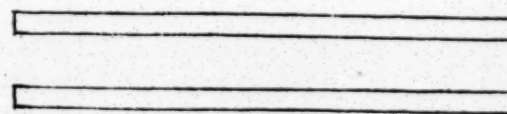


Fig. 3.



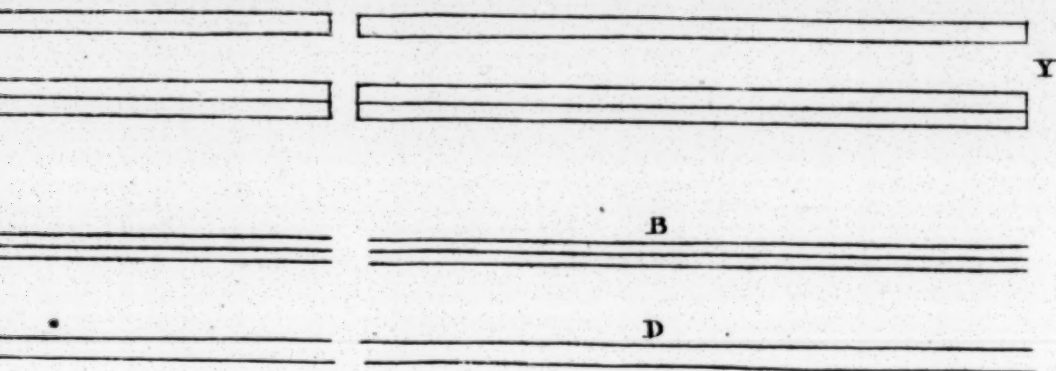


Fig. 4.

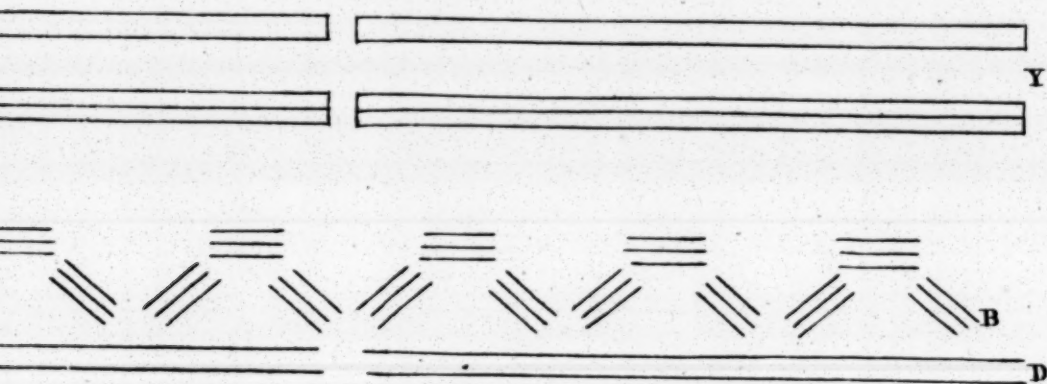
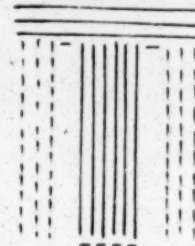


Fig. 5.

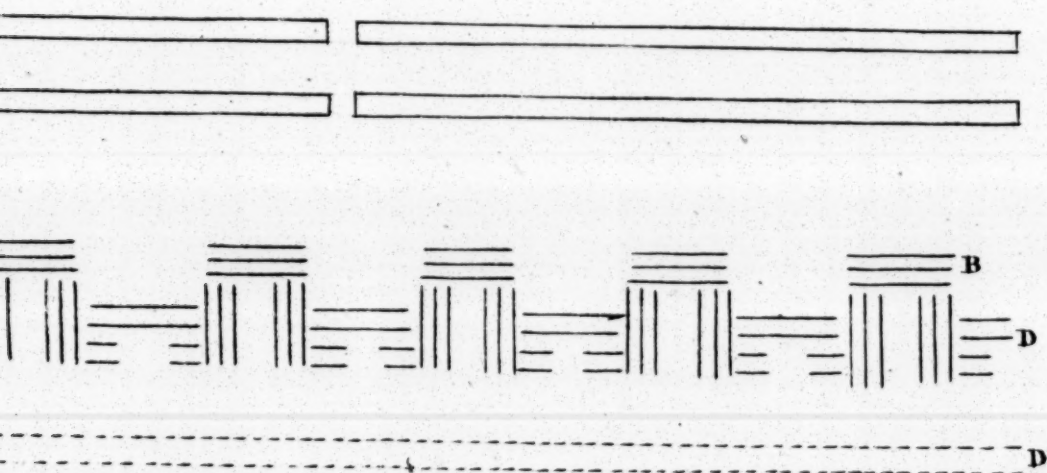
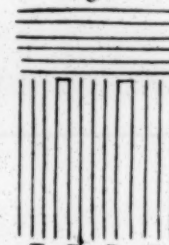


Fig. 6.



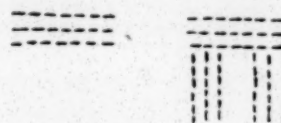


Fig. 2.

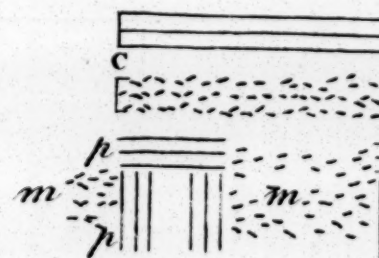
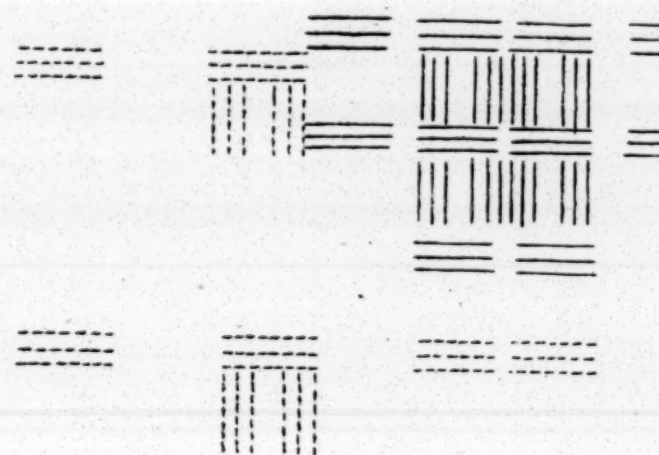


Fig. 1.

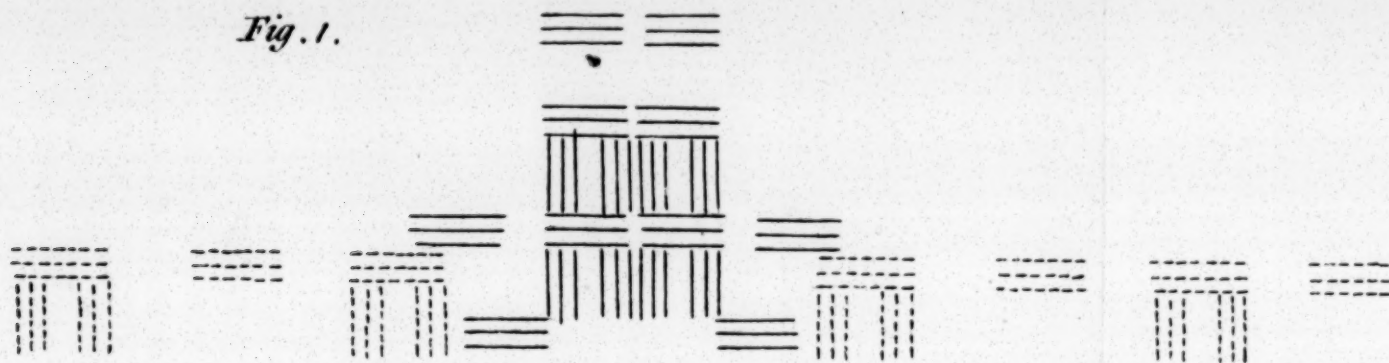


Fig. 2.

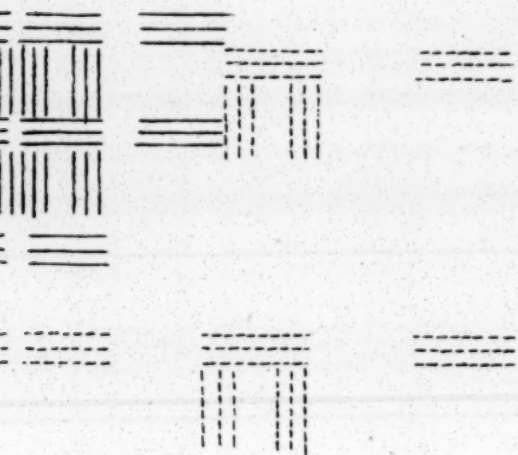


Fig. 3.

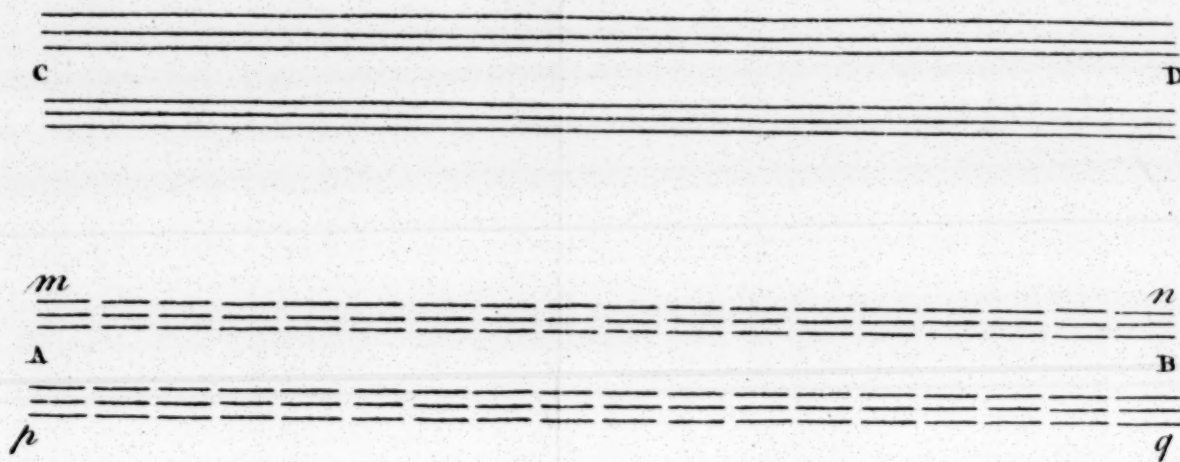
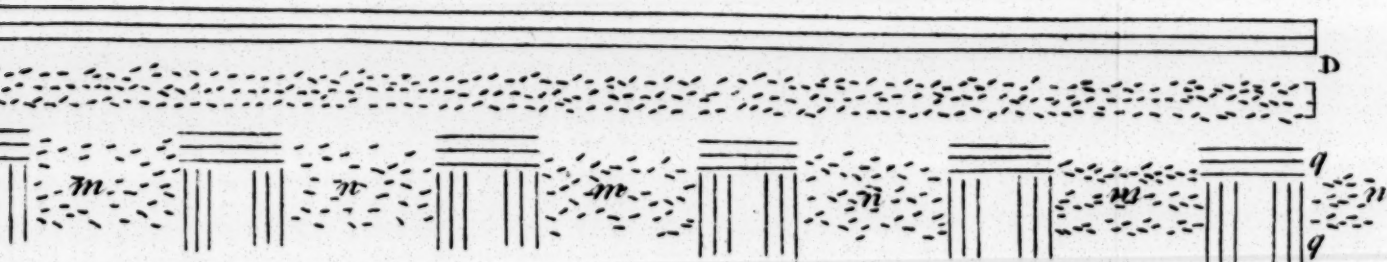
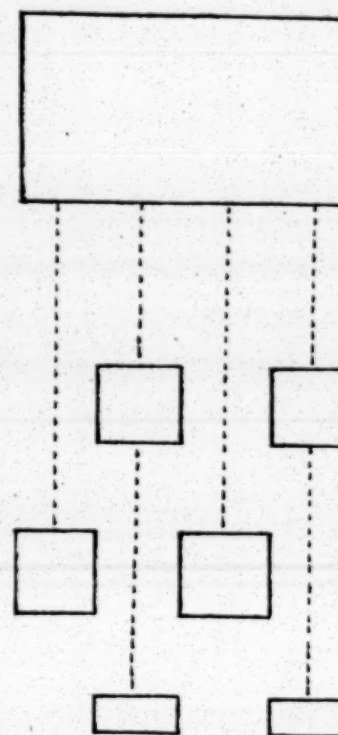


Fig. 4.





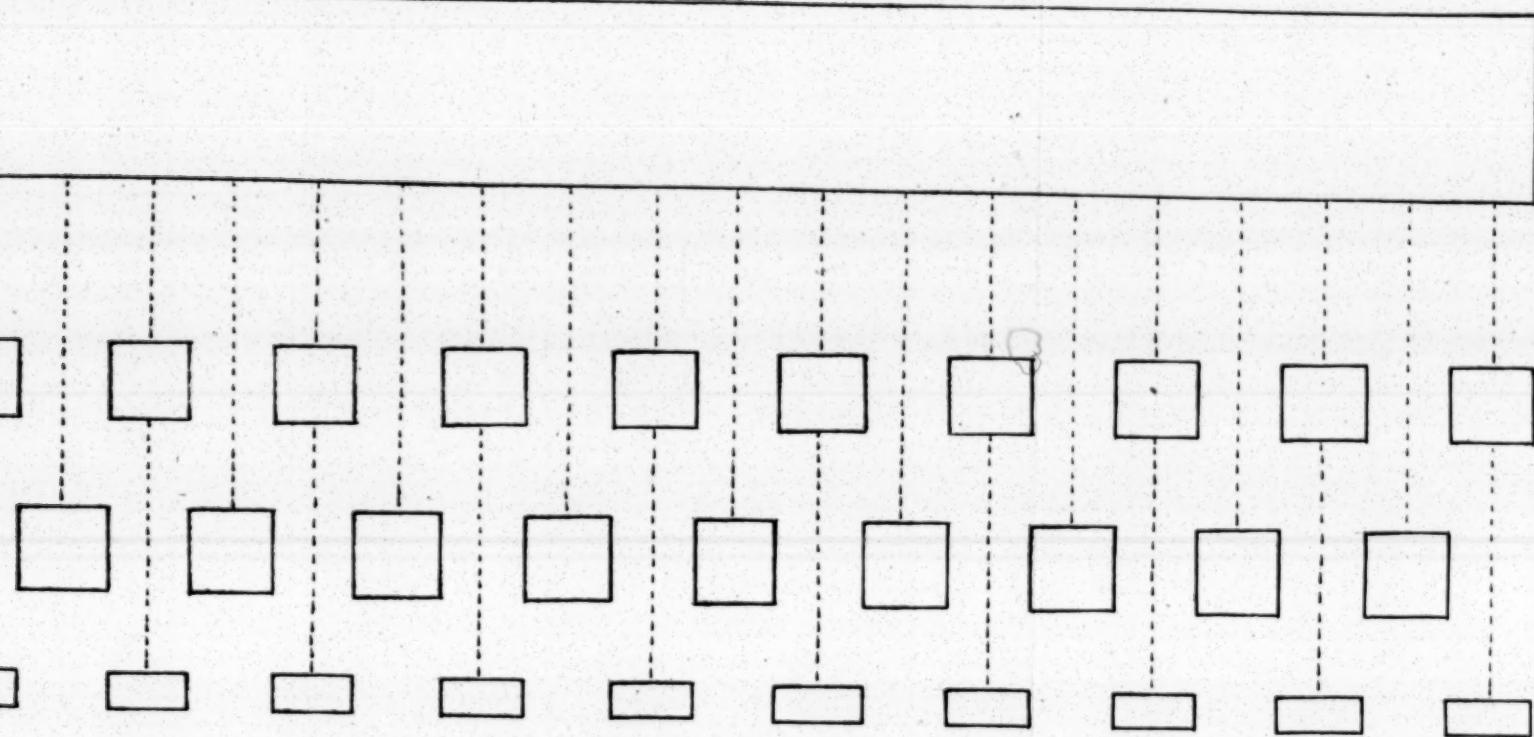


Fig. 1.

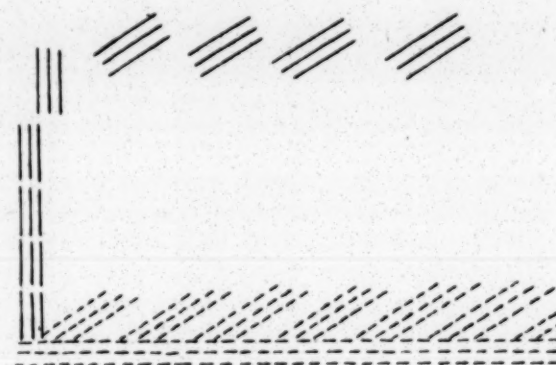


Fig. 5.

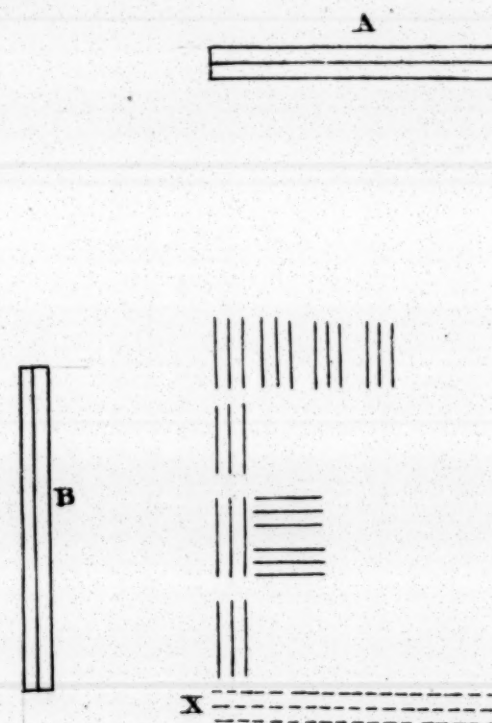


Fig. 2.

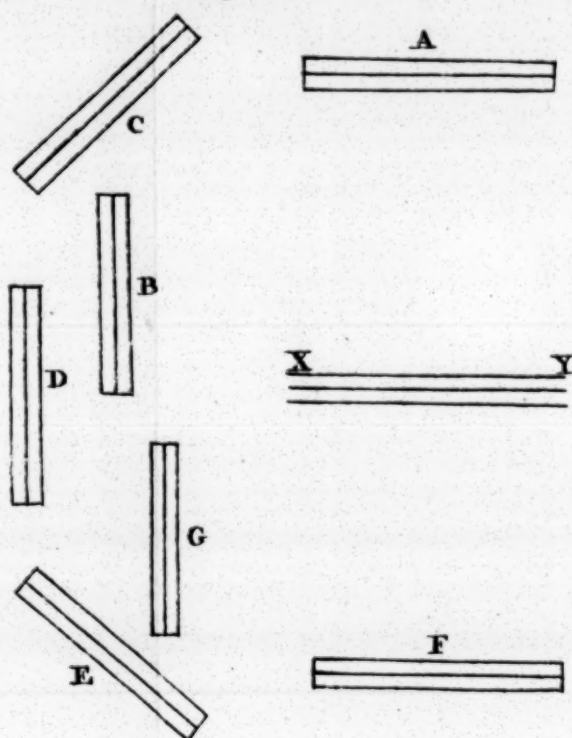


Fig. 3.

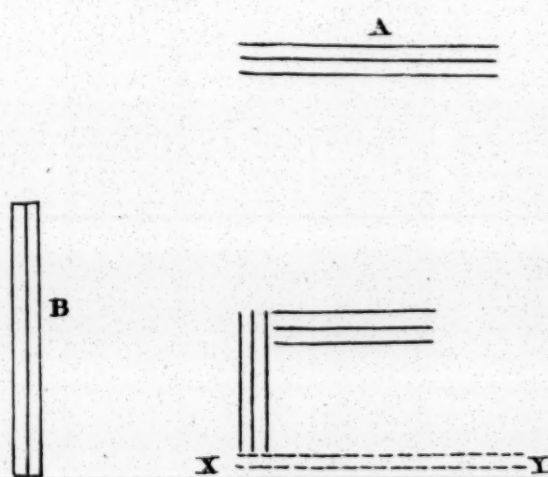


Fig. 4.

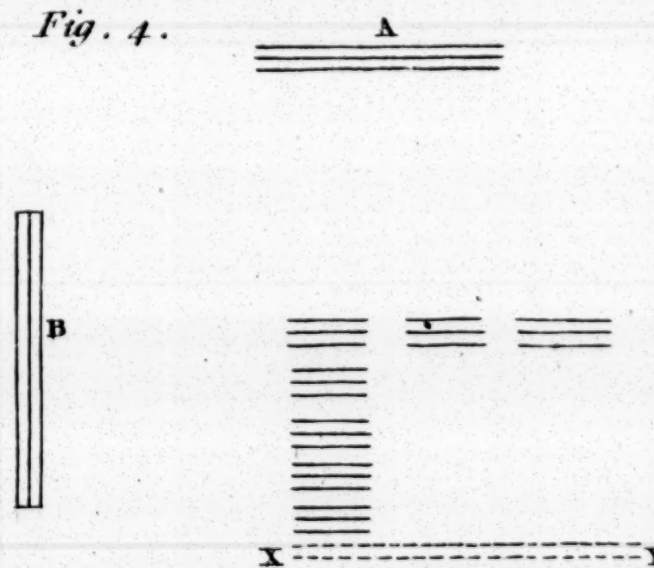


Fig. 1.

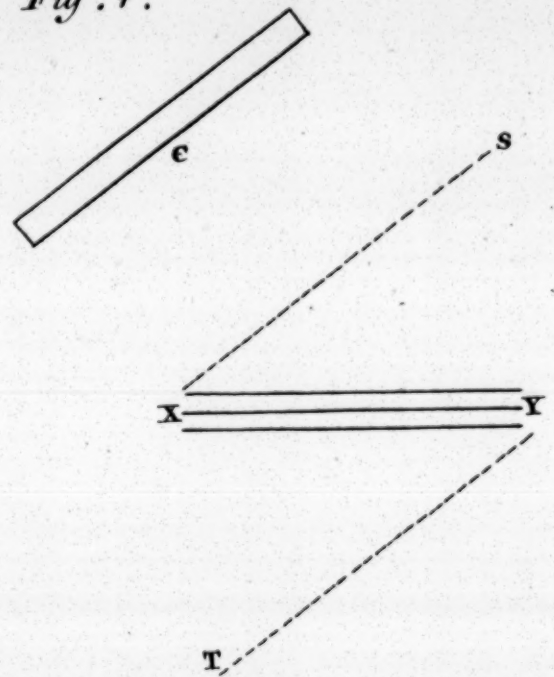


Fig.

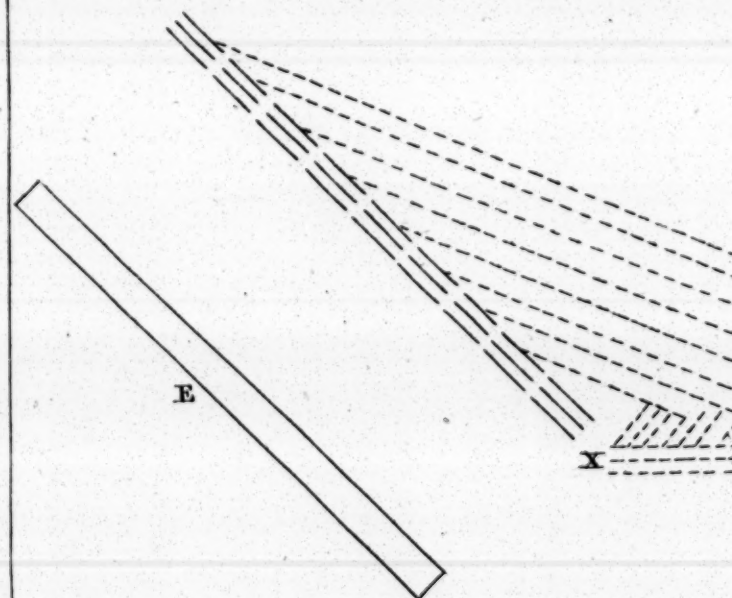


Fig. 2.

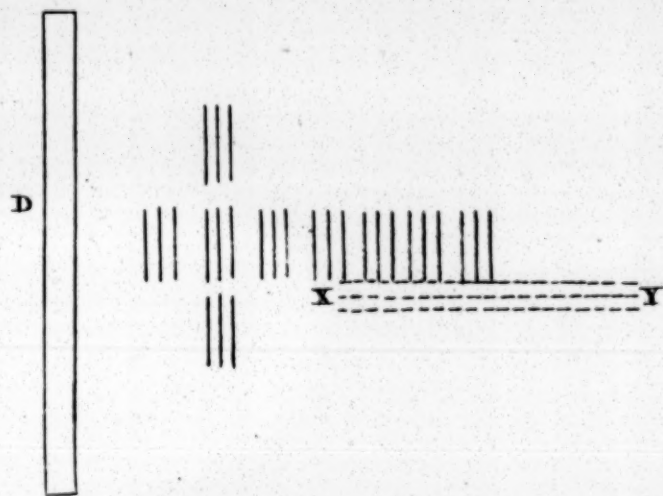


Fig. 3.

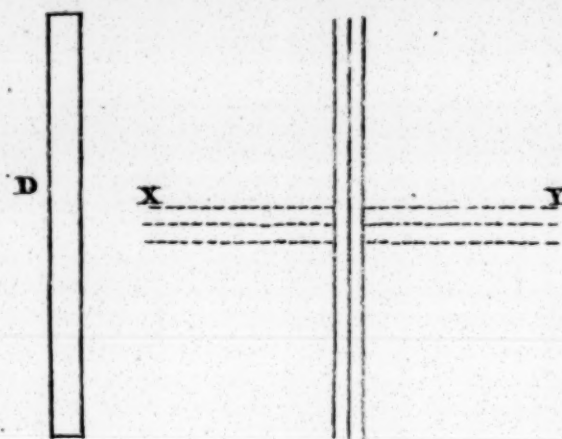


Fig. 4.

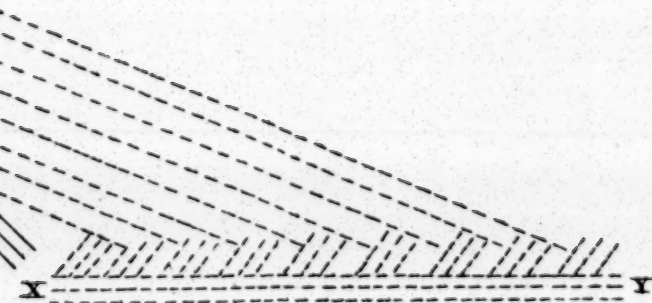
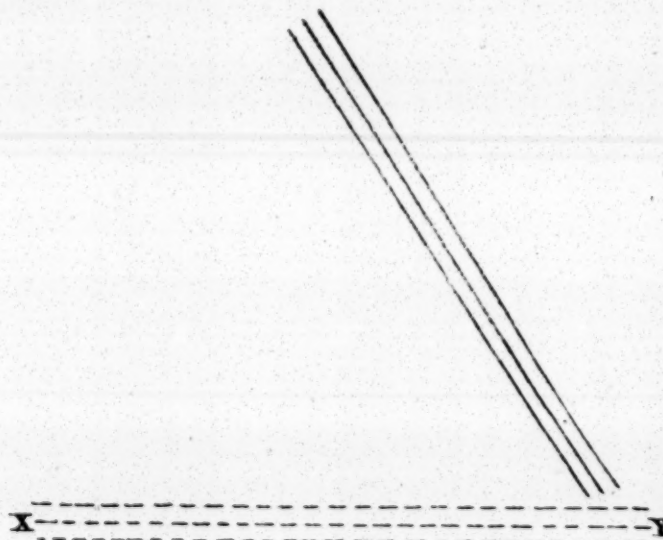
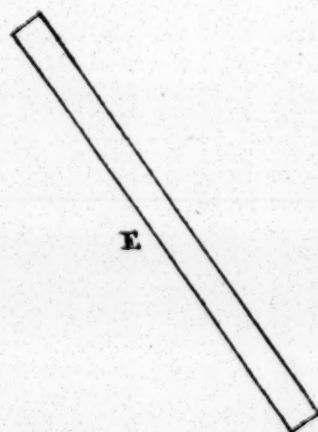


Fig. 5.



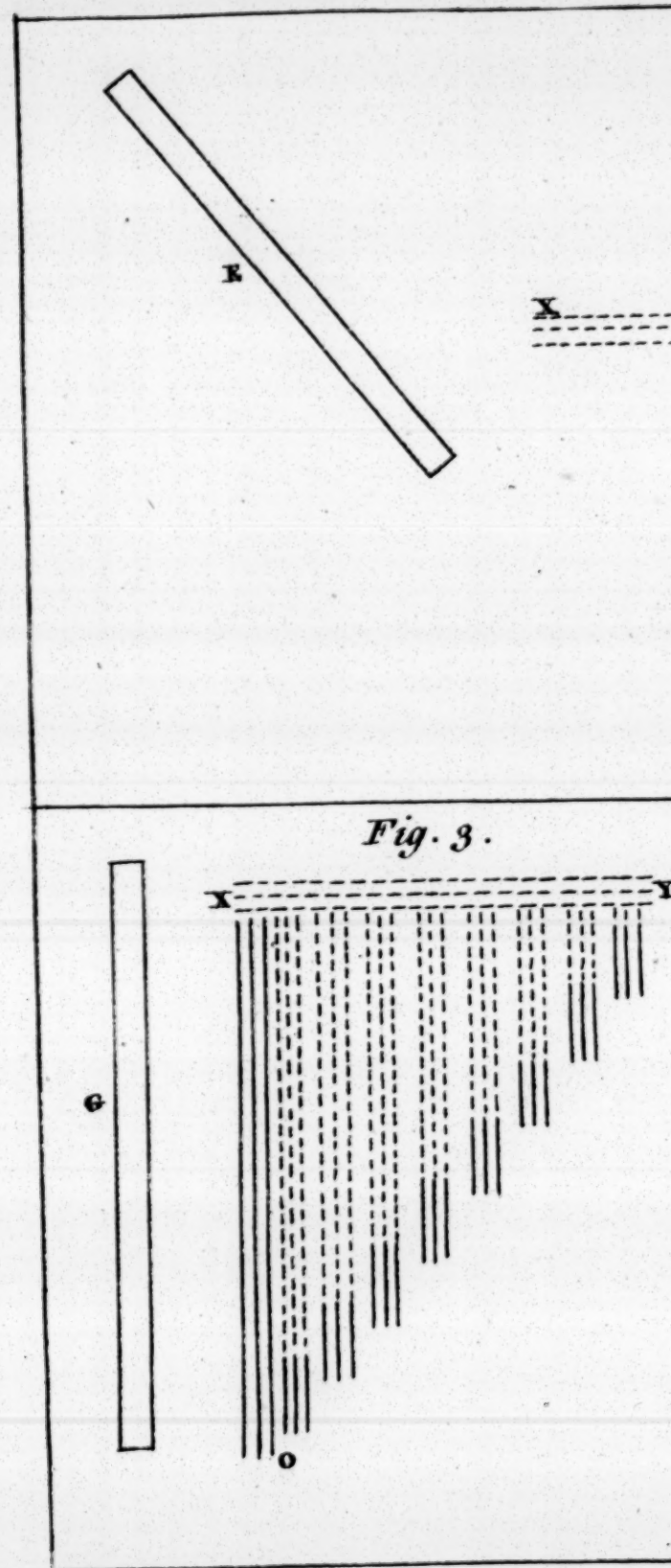


Fig. 1.

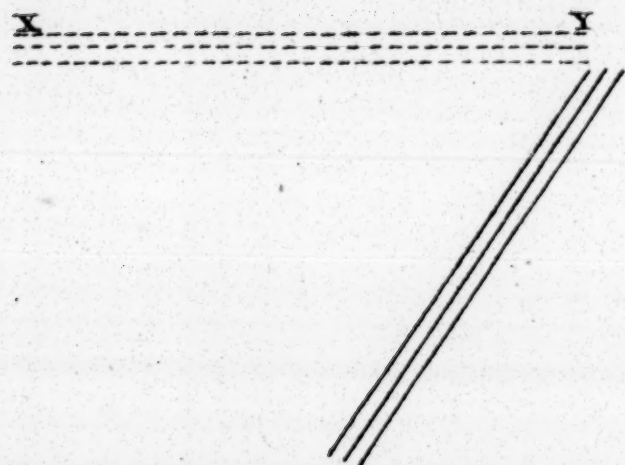


Fig. 2.

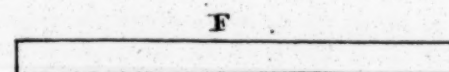
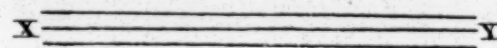


Fig. 4.

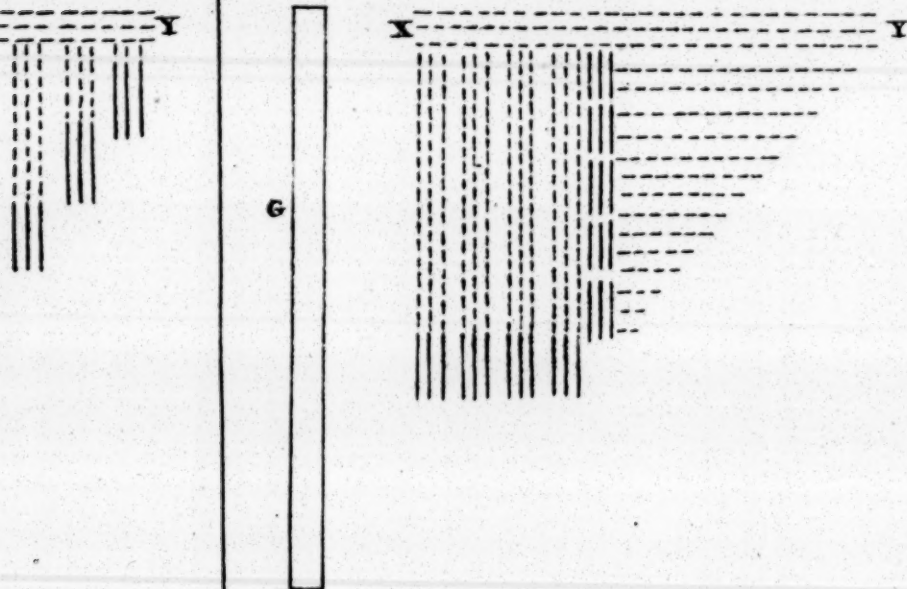
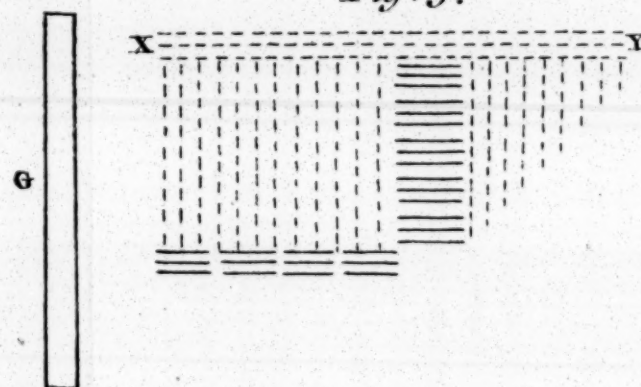


Fig. 5.





X



Fig. 1.

Fig. 4.

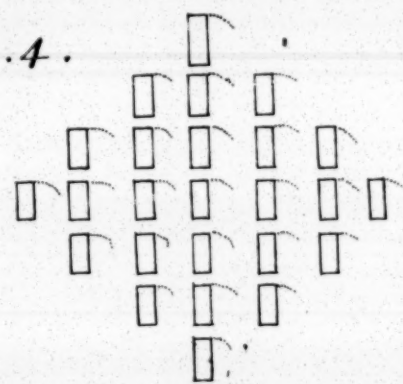




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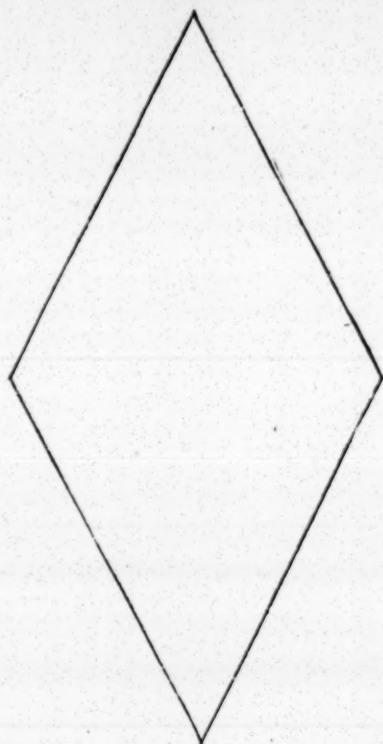


Fig. 3.

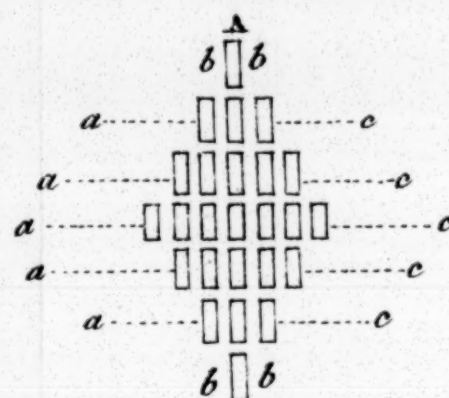


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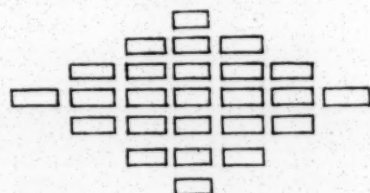


Fig. 6.

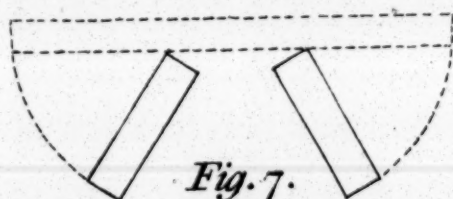
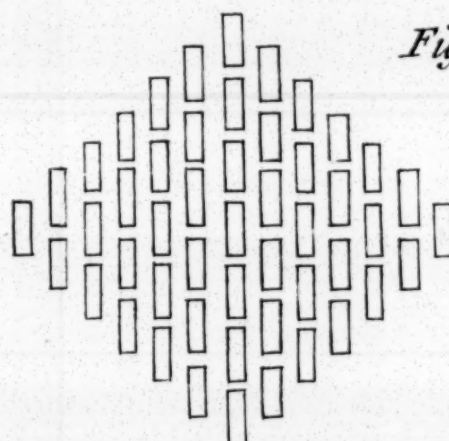


Fig. 7.

Fig. 1.

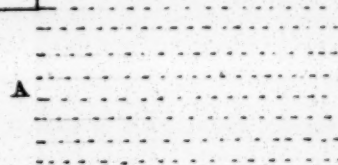
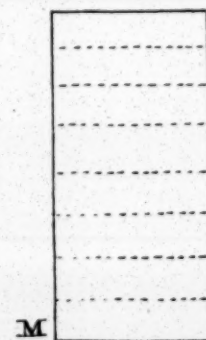
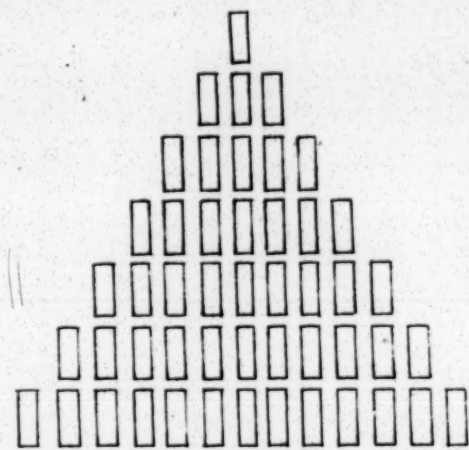


Fig.

Fig. 3.

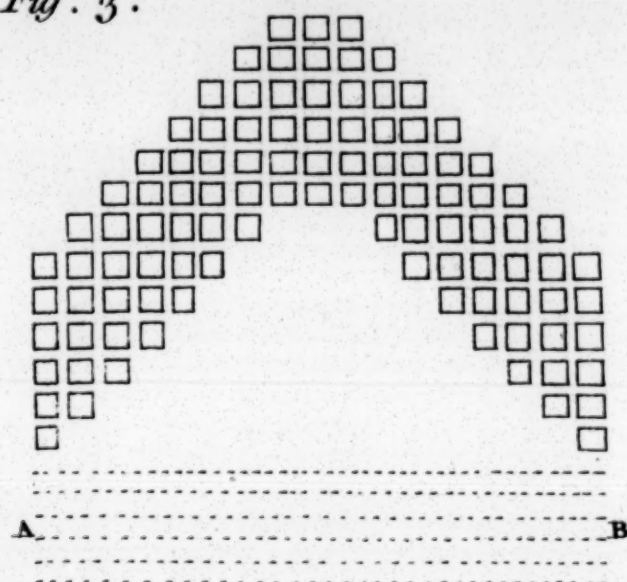


Fig. 2.

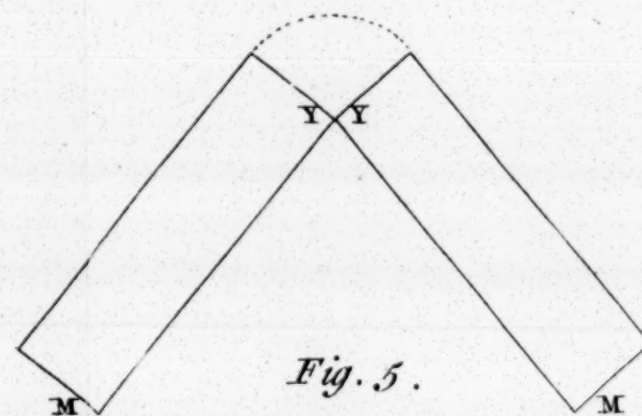
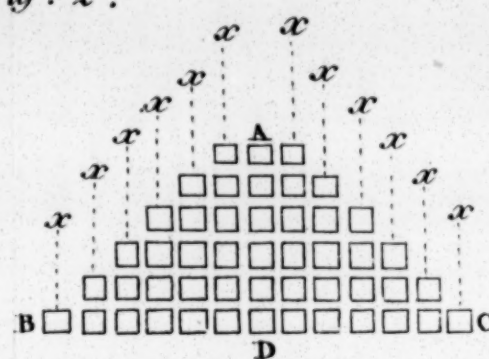


Fig. 5.

Fig. 4.

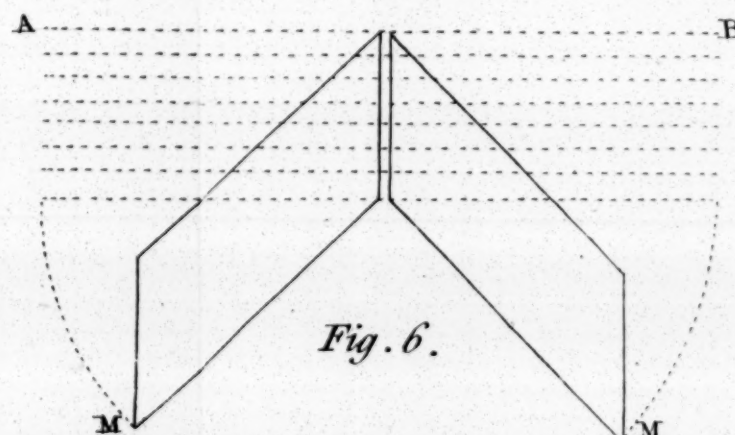
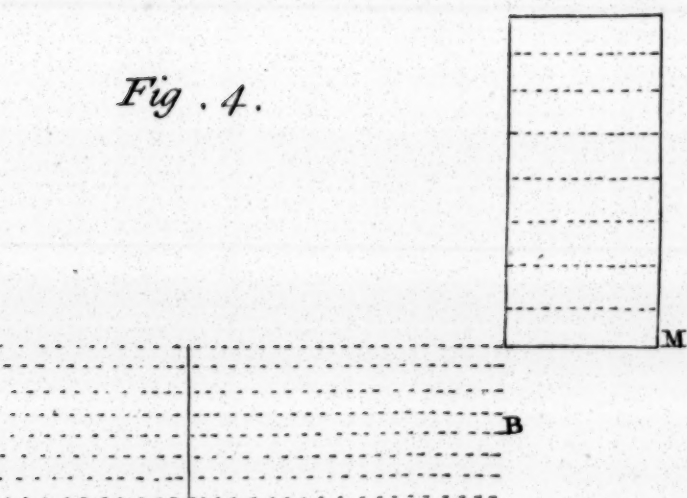


Fig. 6.

